

CHAPTER II

ALTERNATIVES

INTRODUCTION

This chapter presents a detailed description of four alternatives for winter visitor use in Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway. Three of the alternatives (alternatives 2, 3, and 4) are limited specifically to actions that allow snowmobile recreation to continue in the parks. Alternative 1a is the selected alternative in the *Record of Decision for the Winter Use Plans and Final Environmental Impact Statement for Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway* (ROD) as modified by the final rule published in the *Federal Register* (Part XVII Department of the Interior, National Park Service, 36 CFR Part 7, Special Regulations, Areas of the National Park System; Final Rule) on January 22, 2001. This alternative serves as the no action alternative. Alternative 1b is the same as alternative 1a, but it defers implementation for one year.

All alternatives considered in this document must meet the stated purpose and need for action for this SEIS (see Chapter I, Purpose and Need, Scope of Analysis and Decision to be Made) by considering new snowmobile technologies and other new information related to winter visitor use.

In accordance with National Environmental Policy Act (NEPA), alternatives are presented in a comparative form and mitigation measures not already included in the alternatives are described. Alternatives are comparable to Final EIS alternatives in regard to how they address existing conditions.

Changes Between the Draft SEIS and Final SEIS

In the Final SEIS, alternative 4, the preferred alternative, has been added. At the request of the State of Wyoming, some changes to alternative 2, including changes to the number of snowmobile entries per day to Yellowstone, have been made. For all of the alternatives, additional details concerning adaptive management and monitoring programs have been identified, as these programs are critical to ensure protection of park resources and values. Table 12 reflects updated adaptive management and monitoring thresholds, methods, and management options. In addition, the environmentally preferred alternative has been identified, and the rationale for the selection of the preferred alternative has been included. Finally, the season each alternative would be implemented has been moved back a year, because of the extension of the time frame for preparation of the Final SEIS. Implementation of year 1 of the alternatives would occur in the 2003-2004 winter season; year 2 in 2004-2005; and year 3 in 2005-2006.

FORMULATION OF THE ALTERNATIVES

The alternatives for the SEIS were formulated in response to the concern that information on new snowmobile technologies and other connected issues was not included in the Final EIS. Consequently, alternatives 2, 3, and 4 were formulated specifically to provide an additional basis for the choice of snowmobiles as a mode of winter transportation in the parks. Each alternative proposed considers a different means of achieving the desired condition of the parks in the winter while minimizing impacts to park resources. Alternative 4, the preferred alternative, was not presented in the Draft SEIS, but has been added to provide another option for achieving the desired condition of the parks in the winter while minimizing impacts to park resources.

ALTERNATIVE DESCRIPTION

An individual alternative may consist of up to seven descriptive components: alternative actions; a map; implementation strategies; management zone description; mitigation and monitoring; and adaptive management indicators and thresholds. All components are essential for a comprehensive understanding of each alternative. Table 10 summarizes the actions for each alternative by topic, and the components are summarized below. Table 11 summarizes alternative effects for each alternative. Table 12 includes adaptive management and monitoring programs that are integral to all alternatives.

Alternative Actions

The actions and assumptions common to all alternatives for the three parks are listed first, followed by actions common to all alternatives, but specific to each park. Following common actions, each alternative is explained in terms of its conceptual basis, the issues it responds to, and the specific programmatic actions or features that would be proposed for each park. Alternative maps show recreational zones and opportunities for each park, creating a picture of how the actions would be applied geographically.

Implementation Strategies

The outcome of the Final EIS for winter use was the development of a plan for each park that addressed the existing and potential impacts on resources and values from winter recreational uses. A plan of this type is general in nature and is termed “programmatic” because it describes an overall program for winter use. Because a plan of this type is general, an analysis of environmental impacts need only be conducted at a general level. This means that it is not site specific. One of the most common comments from the public during review of a programmatic document is “how will this work?” Answering too many of these site-specific concerns in a programmatic alternative changes the level of analysis required in the document to site specific rather than programmatic. To address this concern, a section has been added to each alternative description titled *Implementation Strategies*. This section describes options that the NPS might use to implement the programmatic actions listed in the alternative.

Management Zones

In contrast to site-specificity, the definition and allocation of management zones is characteristic of a programmatic plan. For each alternative, the parks are divided into management zones. Management zones are defined as shown in Table 1, Table 4, Table 6, and Table 8 using the following characteristics:

- Desired resource condition or character
- Desired visitor experience
- Appropriate activities and facilities

Management zone definitions and locations change by alternative. The purpose of the management zone allocation is to detail the range of visitor experiences that would be provided, the resource parameters necessary to provide that experience, and to describe where in the parks each type of experience would occur. Each zone is discrete and cannot overlap with another zone. Consequently, each alternative description provides a different mix of visitor experiences and resource conditions for the parks. This approach considers and analyzes a diversity of appropriate experiences and underlying resource conditions, and helps structure future carrying capacity analyses and monitoring thresholds.

Management zones are identified in Figures 2 through 6. For clarity purposes, these figures only identify zones about which there is a decision to be made in this SEIS. The locations of other management zones are unchanged from the Final EIS preferred alternative (alternative G) and are represented in Figures 8 and 14 of the Final EIS. These figures are incorporated by reference.

Mitigation

As with alternative actions, mitigation measures represent choices for the decision maker to incorporate based on consideration of the issues. Mitigation measures should flow logically from potential impacts disclosed in the analysis. They may involve minimizing impacts by limiting the degree or magnitude of the action, reducing or eliminating the effect over time by preservation and maintenance, or by avoiding the impact altogether.

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Actions and Assumptions Common to All Units

- None of the actions proposed under any alternative precludes closure for safety, resource protection, or other reasons as identified in 36 CFR 1.5 or 2.18.
- None of the alternatives preclude the non-recreational, administrative use of snowmobiles, by park personnel, or by duly permitted parties under the provisions of 36 CFR 1.5 and 1.6. Permitted parties shall meet technological requirements for cleaner and quieter machines.
- All of the alternatives seek, at minimum, to maintain historical levels of visitation (average annual winter visitation over the past 10 years) to the parks. However, adaptive management and monitoring programs could change the amount and distribution of recreational use, and the mode of transport for visitors.
- For the purposes of these alternatives, the following definitions are consistent throughout:
 - Oversnow motor vehicles: self-propelled vehicles intended for travel on snow, driven by a track or tracks in contact with the snow that may be steered by skis or tracks in contact with the snow. This term includes both snowmobiles and snowcoaches.
 - Snowmobiles: self-propelled vehicles intended for travel on snow, having a curb weight of not more than 1,000 pounds (450 kg), driven by a track or tracks in contact with the snow, which may be steered by a ski or skis in contact with the snow. Note: The EPA definition of snowmobile is: “A vehicle designed to operate outdoors only over snow covered ground, with a maximum width of 1.5 meters or less.”
 - Snowplanes: self-propelled vehicles intended for oversnow travel, having a weight of not more than 1,000 pounds (450 kg) mounted on skis in contact with the snow, and driven by a pusher-propeller.
 - Snowcoaches: self-propelled, mass transit vehicles intended for travel on snow, having a curb weight of over 1,000 pounds (450 kg), driven by a track or tracks and steered by skis or tracks, having a capacity of at least 8 passengers.
- If the Environmental Protection Agency (EPA) adopts standards for any class of oversnow vehicle that is more stringent than the requirements resulting from this NEPA process and decision, the EPA standards shall then become the NPS standard for all oversnow vehicles entering the parks.¹¹
- The alternatives call for the use of sand, or an equally environmentally neutral substance, for traction on all plowed winter roads. No salts would be used. Before spring opening, sand removal operations would continue on all plowed park roads.
- Investigate and implement options to reduce the palatability and accessibility to wildlife of the hydraulic fluid used in snow groomers.

¹¹ See discussion of the EPA rule in Chapter III under Air Quality.

- When snow depth warrants and at periodic intervals, routine plowing operations would include laying back roadside snowbanks that could be a barrier to wildlife exiting the road corridor.
- All alternatives would continue to implement transition and action plans for accessibility and support the philosophy of universal access in the parks. The NPS would make reasonable efforts to ensure accessibility to buildings, facilities, programs, and services. The NPS would develop strategies to ensure that new and renovated facilities, programs and services (including those provided by concessionaires) are designed, constructed, or offered in conformance with applicable policies, rules, regulations, and standards (including but not limited to the Architectural Barriers Act of 1968; the Americans with Disabilities Act of 1990 (ADA); the Uniform Federal Accessibility Standards of 1984 (UFAS); and the Guidelines for Outdoor Developed Areas of 1999). The NPS will evaluate existing buildings and existing and new programs, activities, and services (including telecommunications and media) to determine current accessibility and usability by disabled winter visitors. Action plans to remove barriers would be developed.
- Backcountry nonmotorized use would continue to be allowed throughout the parks except where designated otherwise.
- The phrase “gateway communities” refers to the towns of Jackson and Cody, Wyoming, and Gardiner and West Yellowstone, Montana, only.
- Require all new oversnow vehicles purchased by the parks to conform to the best environmental standards available, and that other vehicles are retrofitted whenever possible with new technologies designed to lower sound and emission levels, subject to available funding.

Adaptive Management and Monitoring

All alternatives include adaptive management provisions. An adaptive management plan is different from a monitoring plan in that it allows park managers to act when some information exists about a specific resource but conclusive data is currently unavailable. The first step in adaptive management is to develop and implement a management scenario based on the best available information. For example, in this document several alternatives propose a specific limit on the number of winter visitors that can enter the park daily via snowmobile. The next step is to implement an evaluation program to assess the success of the management scenario relative to defined resource thresholds. This evaluation is critical within the framework of adaptive management because of the uncertain results of the initial predictions. Managers then review the results of the evaluation program and may adjust activities or use limits to mitigate unplanned or undesirable outcomes. For example, if the visitor limits set for a park entrance have a greater or lesser effect on resource thresholds than predicted, then the number of visitors allowed to enter the parks could be raised or lowered accordingly. Further discussion on the adaptive management process may be found in Appendix I of the Final EIS.

Monitoring is also a component of all alternatives considered in this document. General resource monitoring applies when adequate information exists to make informed management decisions based on discrete and accepted thresholds. It is the process of collecting information to evaluate if the objectives of a management plan are being realized. General monitoring techniques will be used to assess impacts to public health and safety; geothermal features; water quality; threatened and endangered species; wildlife; and some aspects of visitor experience. A sample monitoring plan is provided in Appendix E of the Draft SEIS.

Table 12 follows the description of alternatives and describes monitoring and adaptive management indicators, locations/zones, preliminary thresholds, methods, and monitoring intensity. Table 12 also identifies possible management actions that will be implemented if thresholds are violated. Some non-emergency actions, such as permanent road closures to protect wildlife or the construction of a new

facility, may require additional site-specific NEPA analysis, which includes public involvement. Other actions might be administrative in nature or could be implemented through application of a categorical exclusion under NEPA. The preliminary thresholds in Table 12 are based in part on the least environmentally damaging conditions that would have been achievable under any of the alternatives considered in the SEIS. Monitoring and adaptive management, and management action if these thresholds are violated, will ensure the parks' obligation to preserve park resources and values in an unimpaired condition is achieved, while allowing for winter use of the parks. Many of these thresholds were derived partly from the results of computational models, and they are preliminary in nature. Therefore, they could be adjusted depending on data resulting from monitoring and adaptive management programs.

Actions Specific to Yellowstone

- In Yellowstone, the NPS would continue to plow the road from Mammoth to Tower and Tower to the Northeast Entrance (Cooke City) throughout the winter. The NPS would support the state of Montana's plowing of U.S. Highway 191 in Yellowstone.
- A designated route for "nonmotorized recreation" is defined as a marked or otherwise indicated oversnow travel way.
- Grand Canyon of the Yellowstone and the McMinn Bench bighorn sheep area would continue to be closed to winter use.
- Restrict nonmotorized uses in wildlife winter ranges and thermal areas to travel on designated routes or trails.
- Winter garbage storage facilities that are wildlife-proof would be constructed in the Old Faithful, Grant, Lake, and Canyon areas.
- Continue allowing personal non-recreation use of snowmobiles by employees and their families living in the interior of Yellowstone; however, subject to available funding, provide administrative snowcoaches for their use and encourage them to replace their current snowmobiles with cleaner and quieter machines utilizing the best available technology (BAT).
- Increase interpretive opportunities related to the unique aspects of the winter environment by providing interpretive programs at destination areas and warming huts. Provide guided interpretive programs for organized groups on snowcoaches. Provide interpretive ski and snowshoe tours and programs such as near Tower, Canyon, Mammoth, Old Faithful, West Thumb, Madison, and West Entrance.
- Provide adequate warming huts for all visitors at Old Faithful, Norris, Madison, Canyon, Fishing Bridge, Mammoth Terraces and other appropriate sites.

Actions Specific to Grand Teton and the Parkway

- In Grand Teton and the Parkway, the following roadways would continue to be plowed:
 - Highway 26/89/287 from the south boundary of the park to Moran.
 - Highway 89/287 from Moran to Colter Bay.
 - Highway 26/287 from Moran to the eastern park boundary.
 - Teton Park Road from Moose Junction to Taggart Lake Trailhead, and from Jackson Lake Junction to Signal Mountain Lodge; from Highway 89/287 along the Pacific Creek road to the park boundary; from Kelly to the eastern park boundary; from Gros Ventre Junction to Kelly to Mailbox Corner; and the road to the eastern park boundary at Ditch Creek.
- Current winter closures would remain in effect on the Snake River floodplain, the Buffalo Fork River floodplain, and the Uhl Hill area, Willow Flats, Kelly Hill, Static Peak (zone 9), Prospectors Mountain, and Mount Hunt.

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- Continue to provide access to inholdings and adjacent public and private lands using motorized means. This access would be a combination of plowed roads for wheeled-vehicle access, and staging areas for snowmachines traveling to immediately adjacent lands.
- Reasonable and direct access to adjacent public and private lands, or to privately owned lands within the park with permitted or historical motorized access, will continue via paved and plowed routes or via oversnow routes from GTNP.
- Increase interpretive opportunities related to the unique aspects of the winter environment by providing interpretive programs at destination areas and warming huts. Provide guided interpretive programs for organized groups on snowcoaches. Provide interpretive ski and snowshoe tours and programs at locations such as Moose, Colter Bay, and Flagg Ranch visitor services.
- Phase in administrative snowmobile types that meet the best available emission and sound limits, subject to available funding. Administrative use of snowmobiles in Grand Teton is limited to law enforcement, utility and maintenance access, and search and rescue or other use as approved by the superintendent and consistent with NPS Management Policies 8.2.3.2.
- Continue destination and support facilities at Moose, Triangle X, Colter Bay, and Flagg Ranch, and add warming hut facilities along the Teton Park Road to provide visitor services and interpretive opportunities that focus on nonmotorized uses (zone 1).

Mitigation Common to All Alternatives

Water Resources

- Best management practices will be used during the construction, reconstruction, or winter plowing of trails and roads to prevent unnecessary vegetation removal, erosion, and sedimentation.
- Winter-motorized trails will be separated from drainages to mitigate the routing of snowpack contaminants into surface water.
- Any new or reconstructed winter use sanitary facilities will be constructed in locations and with advanced technologies that will protect water resources.
- A focused monitoring program will reduce the uncertainty of impacts from oversnow vehicles, and if necessary indicate best management practices that might be implemented.

Wildlife, Including Federally Protected Species and Species of Special Concern

- NPS personnel will patrol sensitive resources to ensure compliance with area closures.
- Monitoring of eagle populations to identify and protect nests will continue. The park will continue to support the objectives of the Greater Yellowstone Bald Eagle Management Plan.
- Monitoring of wolf populations will continue.
- Lynx surveys will be undertaken to document the distribution and abundance of lynx in the parks and their relationship to packed surfaces. The presence of other carnivores will be documented. The parks will abide by the recommendations of the Lynx Conservation Assessment Strategy.
- Assessment of grizzly bear abundance, distribution, and habitat selection, including the location of dens, will continue. The information obtained will assist park managers in protecting important habitats and planning recreational activities that minimize disturbance to bears. Monitoring grizzly bear populations will continue in accordance with the Interagency Grizzly Bear Management Guidelines and the parks' bear management plans.
- Monitoring and protecting trumpeter swan habitats and nests will continue, including the closure of nest sites, when warranted, to public access from February 1 to September 15.

- Monitoring potential or known winter use conflicts will result in area closures if necessary to protect wildlife habitat.
- Snow track surveys for carnivores (including lynx) will be conducted on both groomed and ungroomed routes.
- Use of groomed, ungroomed, and plowed surfaces by bison and other ungulates will continue to be monitored.

Cultural Resources

- Should the discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony occur during construction, provisions outlined in the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001) will be followed.
- Trails and trailheads will be sited to avoid adversely impacting known cultural resources, including potential cultural landscapes. In addition, the use of natural materials and colors for all permanent signs erected will allow the signs to blend into their surroundings.

Implementation Strategies

When a decision is made following this SEIS, which sets the program goals and plan in place for winter use in the parks, some strategies may be applied to assist in the implementation of the plan. Generally, these strategies are regarded as tools that currently exist within the parks' authority to assist in *implementing* the plan. The environmental impacts, adverse or beneficial, of these strategies are not specifically addressed in this SEIS, as some actions may be categorically excluded or do not require an EIS for approval. Implementation strategies are like mitigation measures in that they may function to reduce anticipated impacts as well as facilitate the achievement of a plan goal. Examples of implementation strategies include:

- Implement an information program on snow and trail conditions, points of interest, and available recreational opportunities. Through partnerships, establish park visitor contact opportunities in gateway communities and utilize state tourism program resources.
- If snowmobiles are allowed, provide an educational video for use in gateway communities and at all area snowmobile rental businesses to educate snowmobile operators regarding safety, operational laws, user etiquette, interaction with wildlife and other park visitors, and park interpretive subjects.
- Evaluate snowcoach service on the East Entrance road if safety goals can be met. Management of avalanche danger on the East Entrance road may mean unscheduled closures of the road to all travel.
- Establish a reservation system, with a staggered entry time, for winter visitors.
- When designing and locating the proposed new West Entrance station, include strategies to facilitate vehicle access and improve airflow and quality.
- If snowmobiles are allowed, separate snowmobile and snowcoach parking at the Old Faithful area.

ALTERNATIVE 1A — NO ACTION

This alternative (Figures 2 and 4) was the selected alternative in the *Record of Decision for the Winter Use Plans and Final Environmental Impact Statement for the Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway*. That decision was signed by Karen Wade, National Park Service Intermountain Regional Director, on November 22, 2000. Consequently, the version of the alternative that was published in the ROD represents the no action alternative. For clarity, elements of that decision that are not being re-evaluated in this SEIS have not been repeated

here. The reader is referred to Chapter I, Winter Use Plan Elements Not Re-evaluated in This SEIS for a complete listing of these action items.

Actions and Assumptions Common to All Units

- In the winters of 2003-2005, allow existing commercial snowcoach operators to increase their fleet size and encourage snowmobile and other new operators to purchase snowcoaches and reduce snowmobile numbers. All limits on snowmobile use will be based on a nine-year average peak day.
 - In 2003-2004, allow snowmobile use at a maximum of 50% of the current use level, at the South and West Entrances of YNP. Maintain current snowmobile use levels from the East and North Entrances of YNP and the Continental Divide Snowmobile Trail (CDST) and Grassy Lake Road in GTNP and the Parkway.
 - In 2004-2005, all oversnow motorized visitor travel in the parks will be by snowcoach. Close the CDST through GTNP.
- Continue scientific studies and monitoring regarding winter visitor use and park resources. Close selected areas of the park, including sections of roads, to visitor use if scientific studies indicate that human presence or activities have a detrimental effect on wildlife or other park resources that could not otherwise be mitigated. The appropriate level of environmental assessment under NEPA will be completed for all actions as required by CEQ regulations (40 CFR parts 1500-1508).
 - Give a 1-year notice before any such closure is implemented unless immediate closure is deemed necessary to avoid impairment of park resources.
- By an affirmative commitment, implement strategies designed to provide a reasonable level of affordable winter access to park visitors.
- Permit only NPS-managed mass transit snowcoaches on designated oversnow roads.¹²
- Through the permitting process, phase out or retrofit all oversnow vehicles that do not meet the best available environmental standards for oversnow mass transit travel. Currently, the mass transit oversnow vehicle that produces the lowest emissions is the conversion van.¹³
- Beginning in 2004-2005, allow mass transit snowcoaches only when their sound levels are at or below 75 decibels (dB) as measured on the A-weighted scale at 50 feet at full throttle. Continue to work with snowcoach manufacturers and operators to meet a long-term goal to lower snowcoach sound levels to 70 dB(A) or lower.
- Prohibit late night oversnow travel from about 9 P.M. to 8 A.M.

¹² Note: The term “NPS managed” refers to permit management. In this case private concessionaires who operate under a permit from the NPS would provide the mass transportation snowcoach system. Under the terms of the permit or concessions contract, the NPS may stipulate, among other items, the type of services to be offered, cost to the public, and number of visitors that may be served or transported. The NPS may require that the types of vehicles used meet certain environmental and safety requirements. It is the responsibility of the NPS to monitor all services offered under permit to ensure that the public and the parks are being well served. These permits are generally offered for competitive bidding and are granted for a specific number of years.

¹³ Estimates of emissions for conventional vans converted for oversnow travel indicate that the emissions increase once the conversion is made. For this reason adherence to EPA regulations for similar wheeled vans is neither appropriate nor required.

Actions Specific to Yellowstone

- Continue all existing groomed motorized routes (zone 3).
- Implement the winter use season during the period from late November to mid-March.
- Reduce administrative snowmobile use from the 106 currently used and supplement with administrative snowcoaches, subject to available funding. Phase in a limited number of administrative snowmobiles to a type that meet the best available emission and sound limits.
- Allow limited use of snowmobiles by concessionaires. Require best available clean and quiet technologies as they are developed (through permit and contracts) and encourage the use of snowcoaches.

Actions Specific to Grand Teton and the Parkway

- Provide opportunities for oversnow motorized trail use (zone 3) by snowcoaches only on the unplowed, groomed surface of the highway from Colter Bay to Flagg Ranch, north into Yellowstone, and the Grassy Lake Road.
- Honor current Flagg Ranch permit concerning access by plowed road until the current permit expires on December 31, 2009.
- Winterize facilities at Colter Bay to provide a suitable staging area for snowcoach access.

Table 1. Description of management zones for alternatives 1a and 1b.

Management Zones →	1 Destination or Support Area	2 Plowed Road	3 Groomed Motorized Route	4 Groomed Motorized Trail
Resource Condition or Character	<ul style="list-style-type: none"> Minimally to highly developed hubs of activity Facilities and signs of human activity obvious, but natural elements also present Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety As small as possible while still providing essential services Visitor use may compromise natural resource values 	<ul style="list-style-type: none"> As narrow as possible to protect resources, but wide enough to accommodate safety pullouts, overlooks, and trailhead areas Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety Good to excellent air quality Visitor use may compromise resource values 	<ul style="list-style-type: none"> Smooth groomed snow surface Generally gentle terrain Good to excellent air quality As narrow as possible to protect resources, but wide enough to accommodate safety pullouts, overlooks, and trailhead areas Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety Visitor use may compromise resource values Vehicles must meet sound and emission requirements 	<ul style="list-style-type: none"> Narrower, groomed but less maintained snow surface Gentle to moderate terrain Vehicles must meet sound and emission requirements Generally good to excellent air quality Human caused sound intermittent, audibility low to moderate As narrow as possible to protect resources, but wide enough to accommodate pullouts, overlooks trailheads, and trailhead areas Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety Visitor use may compromise resource values

Management Zones →	1 Destination or Support Area	2 Plowed Road	3 Groomed Motorized Route	4 Groomed Motorized Trail
Visitor Experience	<ul style="list-style-type: none"> Facilities convenient and blended with adjacent resources Many opportunities for social interaction High sound levels possible High probability of encountering other visitors and NPS staff 	<ul style="list-style-type: none"> Destinations and natural attractions of high interest High probability of encountering other visitors Provides a sense of being in a natural park environment Visitor experience mostly visual Occasional quiet and solitude Commercial or residential traffic on some stretches Intermittent low to moderate sound associated with vehicular travel expected 	<ul style="list-style-type: none"> Destinations and natural attractions of high interest Provides a sense of being in a natural park environment High probability of encountering other visitors Solitude occasionally possible, but not expected Limited opportunities for challenge and adventure Few outdoor skills needed Some low-level sound associated with travel expected 	<ul style="list-style-type: none"> Natural attractions of high interest Moderate probability of encountering other visitors Chance to view the natural environment important Solitude occasionally possible, but not expected Some outdoor skills necessary Some opportunities for challenge and adventure Relatively quiet; sight and smell of vehicle exhaust not expected
Appropriate Activities and Facilities	<ul style="list-style-type: none"> Visitor centers Warming huts Overnight lodging Gas stations Food services Staging areas Administrative facilities Structured interpretive programs 	<ul style="list-style-type: none"> Wheeled vehicular travel only Paved and unpaved roadways, signs, barriers Interpretive media and display Utilities Scenic overlooks, restrooms, trailhead areas, pullouts 	<ul style="list-style-type: none"> Predominantly oversnow vehicular travel; some non-vehicular travel Oversnow roads, signs, barriers Interpretive media, programs and displays Utilities Scenic overlooks, restrooms, trailhead areas, pullouts 	<ul style="list-style-type: none"> Predominantly oversnow vehicular travel; some non-vehicular travel Oversnow trails, signs, barriers Utilities, Scenic overlooks, trailhead areas, restrooms

Table 1 continued.

Management Zones→	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Resource Condition or Character	<ul style="list-style-type: none"> ▪ Ungroomed snow surface ▪ Marked except for frozen water surfaces ▪ Gentle to moderate terrain ▪ Vehicles must meet sound and emission requirements ▪ Generally good to excellent air quality ▪ Sound levels intermittent, low to moderate ▪ Wide enough to accommodate existing road corridor, pullouts, overlooks trailheads, and trailhead areas ▪ Low to moderate modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety ▪ Visitor use may compromise resource values 	<ul style="list-style-type: none"> ▪ Smooth groomed snow surface ▪ Marked and signed ▪ Generally gentle terrain ▪ Creates predictable patterns of winter use and confines resource impacts to narrow corridors ▪ Good to excellent air quality ▪ Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Visitor use may compromise resource values ▪ Sound from human sources is intermittent, audibility is low to nonexistent ▪ Natural sound predominates the soundscape 	<ul style="list-style-type: none"> ▪ Ungroomed snow surface ▪ Marked or unmarked ▪ Gentle to steep terrain ▪ Creates fairly predictable patterns of winter use and confines resource impacts to relatively narrow corridors ▪ Excellent air quality ▪ Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Natural sound predominates the soundscape ▪ Visitor use may compromise resource values 	<ul style="list-style-type: none"> ▪ Appears natural and untouched by humans ▪ Gentle to steep terrain ▪ Excellent air quality ▪ Little to no evidence of visitor impacts ▪ Little to no modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Visitor use may compromise resource values ▪ Natural sound predominates the soundscape 	<ul style="list-style-type: none"> ▪ Appears natural and untouched by humans ▪ Gentle to steep terrain ▪ Excellent air quality ▪ Natural and/or cultural resource values so vulnerable that winter visitor use is not permitted

Management Zones →	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Visitor Experience	<ul style="list-style-type: none"> ▪ Natural attractions of high interest ▪ Moderate probability of encountering other visitors ▪ Chance to view the natural environment important ▪ Solitude occasionally possible, but not expected ▪ Moderate outdoor skills necessary ▪ Moderate opportunities for challenge and adventure ▪ Relatively quiet; sight and smell of vehicle exhaust not expected 	<ul style="list-style-type: none"> ▪ Provides a sense of immersion in a generally natural landscape ▪ Natural attractions of high interest ▪ High probability of encountering other users ▪ Solitude occasionally possible, but not expected ▪ Provides some sense of adventure ▪ Few outdoor skills needed ▪ Quiet desirable but not essential for visitor enjoyment 	<ul style="list-style-type: none"> ▪ Provides a sense of immersion in a generally natural landscape ▪ Natural attractions of high interest ▪ Moderate probability of encountering other users; probability increases near destination areas ▪ Moderate opportunities for solitude ▪ Feels somewhat distant from most comforts, conveniences, and facilities ▪ Generally requires a commitment to time-consuming and physically and mentally exerting activities ▪ Provides opportunities for adventure and physical challenge ▪ Outdoor skills needed ▪ Natural sounds predominate 	<ul style="list-style-type: none"> ▪ Provides a strong sense of immersion in a very natural landscape ▪ Natural quiet expected ▪ Low probability of encountering other users; good opportunities for solitude ▪ Provides strong sense of remoteness ▪ Requires a commitment to time-consuming and physically and mentally exerting activities ▪ Good opportunities for adventure and physical challenge ▪ Outdoor skills such as route finding, avalanche hazard forecasting, and survival knowledge necessary ▪ Natural sounds predominate 	<ul style="list-style-type: none"> ▪ Natural soundscapes predominate
Appropriate Activities and Facilities	<ul style="list-style-type: none"> ▪ Predominantly oversnow vehicular travel; some non-vehicular travel ▪ Oversnow roads, signs, barriers ▪ Interpretive displays ▪ Utilities, ▪ Restrooms, scenic overlooks, trailhead areas 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ Oversnow trails, markers, signs, ▪ Interpretive media ▪ Scenic overlooks, trailheads 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ Signs or other route markers 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ No facilities 	<ul style="list-style-type: none"> ▪ Limited resource management activities ▪ No visitor activities or facilities

Interim Snowmobile Use Limits

For the winter use season 2003-2004, the numbers of snowmobiles allowed to use the park each day are limited to the numbers represented in Table 2.

Table 2. Interim cap on snowmobile use in alternative 1a for Yellowstone/Grand Teton/Parkway area road segments 2003-2004.

Entrance	Use Limit
North Entrance	60
West Entrance	278
East Entrance	65
South Entrance	90
CDST	25
Grassy Lake Road	25

Monitoring

- In order to assess the long-term effects of management actions on park resources and values resource inventory, monitoring and adaptive management will be incorporated into this decision. Table 12 outlines specific indicators for monitoring natural resources and visitor experience in the three park units. These indicators will be monitored to ensure protection of natural resources and park values and evaluate management success.
- This alternative also includes adaptive management provisions. It will provide for systematic feedback for park management and allow for adjustment of activities to mitigate unplanned or undesirable outcomes. Table 12 describes preliminary indicators, thresholds and potential management actions for adaptive management.

ALTERNATIVE 1B

Alternatives 1a and 1b differ only in their time frame for implementation. Under alternative 1b (Figures 2 and 4) an additional year would be allowed for the phasing in of snowcoach only travel. The phase-in period is described in detail below.

Actions Common for All Units

- In the winters of 2003-2006, allow existing commercial snowcoach operators to increase their fleet size and encourage snowmobile and other new operators to purchase coaches and reduce snowmobile numbers. All limits on snowmobile use would be based on a nine-year average peak day.
- In 2003-2004 allow snowmobile use to the current use level in YNP and GTNP and the Parkway.
- In 2004-2005, allow snowmobile use at a maximum of 50% of the current use level, at the South and West Entrances of YNP. Maintain current snowmobile use levels from the East and North Entrances of YNP and the CDST and Grassy Lake Road in GTNP and the Parkway.
- In 2005-2006, all oversnow motorized visitor travel in the parks will be by snowcoach. Close the CDST through GTNP.
- Beginning in 2005-2006, allow mass transit snowcoaches only when their sound levels are at or below 75 dB as measured on the A-weighted scale at 50 feet at full throttle. Continue to

work with snowcoach manufacturers and operators to meet a long-term goal to lower snowcoach sound levels to 70 dB(A) or lower.

- Beginning in 2005-2006, limit snowcoach visitation to 93,500 (nine year average annual oversnow motorized passengers) until capacity is set through adaptive management.

Interim Snowmobile Use Limits

- For the winter use season 2004-2005, the numbers of snowmobiles allowed to use the park each day are limited to the numbers represented in Table 3.

Table 3. Interim cap on snowmobile use in alternative 1b for Yellowstone/Grand Teton/Parkway area road segments 2004-2005.

Entrance	Use Limit
North Entrance	60
West Entrance	278
East Entrance	65
South Entrance	90
CDST	25
Grassy Lake Road	25

ALTERNATIVE 2

This alternative (Figures 3 and 5) is an adaptive management strategy to mitigate impacts on visitor experience and access, wildlife, air quality and natural sound while allowing snowmobile access on all existing oversnow routes. In addition, this alternative describes a desired future condition for park resources and visitor experience (Table 4). Under this adaptive management scenario, interim visitor use limits would be established for each park entrance until a long-term visitor capacity study has been completed within three years. The appropriate interim snowmobile access levels consist of a mix of visitor experiences, along with adequate protection of air quality, wildlife resources, and natural soundscapes within the parks. Adaptive management programs would be implemented that would allow the success of the interim numbers to be assessed on an annual basis. Adaptive management programs will determine the need for adjusting snowmobile numbers up or down to ensure adequate protection of air quality, wildlife resources, visitor experience and natural soundscapes. Adaptive management thresholds for this alternative are located in this chapter in Table 12, following the description of alternatives.

Table 4. Description of management zones for alternative 2.

Management Zones →	1 Destination or Support Area	2 Plowed Road	3 Groomed Motorized Route	4 Groomed Motorized Trail
Resource Condition or Character	<ul style="list-style-type: none"> ▪ Minimally to highly developed hubs of activity ▪ Facilities and signs of human activity obvious, but natural elements also present ▪ Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety ▪ As small as possible while still providing essential services ▪ Visitor use may compromise natural resource values 	<ul style="list-style-type: none"> ▪ As narrow as possible to protect resources, but wide enough to accommodate safety pullouts, overlooks, and trailhead areas ▪ Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety ▪ Good to excellent air quality ▪ Visitor use may compromise resource values 	<ul style="list-style-type: none"> ▪ Smooth groomed snow surface ▪ Generally gentle terrain ▪ Good to excellent air quality ▪ As narrow as possible to protect resources, but wide enough to accommodate safety pullouts, overlooks, and trailhead areas ▪ Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety ▪ Visitor use may compromise resource values ▪ Vehicles must meet sound and emission requirements 	<ul style="list-style-type: none"> ▪ Narrower, groomed but less maintained snow surface ▪ Gentle to moderate terrain ▪ Vehicles must meet sound and emission requirements ▪ Generally good to excellent air quality ▪ Human caused sound intermittent, audibility low to moderate ▪ As narrow as possible to protect resources, but wide enough to accommodate pullouts, overlooks trailheads, and trailhead areas ▪ Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety ▪ Visitor use may compromise resource values

Management Zones →	1 Destination or Support Area	2 Plowed Road	3 Groomed Motorized Route	4 Groomed Motorized Trail
Visitor Experience	<ul style="list-style-type: none"> Facilities convenient and blended with adjacent resources Many opportunities for social interaction High sound levels possible High probability of encountering other visitors and NPS staff 	<ul style="list-style-type: none"> Destinations and natural attractions of high interest High probability of encountering other visitors Provides a sense of being in a natural park environment Visitor experience mostly visual Solitude not expected Commercial or residential traffic on some stretches Intermittent low to moderate sound associated with vehicular travel expected 	<ul style="list-style-type: none"> Destinations and natural attractions of high interest Provides a sense of being in a natural park environment High probability of encountering other visitors Solitude not expected Limited opportunities for challenge and adventure Few outdoor skills needed Intermittent low to moderate sound associated with motorized over-snow vehicle travel expected 	<ul style="list-style-type: none"> Natural attractions of high interest Moderate probability of encountering other visitors Chance to view the natural environment important Solitude occasionally possible, but not expected Some outdoor skills necessary Some opportunities for challenge and adventure
Appropriate Activities and Facilities	<ul style="list-style-type: none"> Visitor centers Warming huts Overnight lodging Gas stations Food services Staging areas Administrative facilities Structured interpretive programs 	<ul style="list-style-type: none"> Wheeled vehicular travel only Paved and unpaved roadways, signs, barriers Interpretive media and display Utilities Scenic overlooks, restrooms, trailhead areas, pullouts 	<ul style="list-style-type: none"> Predominantly oversnow vehicular travel; some non-vehicular travel Oversnow roads, signs, barriers Interpretive media, programs and displays Utilities Scenic overlooks, restrooms, trailhead areas, pullouts 	<ul style="list-style-type: none"> Predominantly oversnow vehicular travel; some non-vehicular travel Oversnow trails, signs, barriers Utilities, Scenic overlooks, trailhead areas, restrooms

Table 5 continued.

Management Zones→	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Resource Condition or Character	<ul style="list-style-type: none"> ▪ Ungroomed snow surface ▪ Marked except for frozen water surfaces ▪ Gentle to moderate terrain ▪ Vehicles must meet sound and emission requirements ▪ Generally good to excellent air quality ▪ Sound levels intermittent, low to moderate ▪ Wide enough to accommodate existing road corridor, pullouts, overlooks trailheads, trailhead areas ▪ Low to moderate modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety ▪ Visitor use may compromise resource values 	<ul style="list-style-type: none"> ▪ Smooth groomed snow surface ▪ Marked and signed ▪ Generally gentle terrain ▪ Creates predictable patterns of winter use and confines resource impacts to narrow corridors ▪ Good to excellent air quality ▪ Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Visitor use may compromise resource values ▪ Sound from human sources is intermittent, audibility is generally low 	<ul style="list-style-type: none"> ▪ Ungroomed snow surface ▪ Marked or unmarked ▪ Gentle to steep terrain ▪ Creates fairly predictable patterns of winter use and confines resource impacts to relatively narrow corridors ▪ Excellent air quality ▪ Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Sound from human sources is intermittent, audibility is low to nonexistent ▪ Visitor use may compromise resource values 	<ul style="list-style-type: none"> ▪ Appears natural and untouched by humans ▪ Gentle to steep terrain ▪ Excellent air quality ▪ Little to no evidence of visitor impacts ▪ Little to no modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Visitor use may compromise resource values ▪ Natural sound predominates the soundscape 	<ul style="list-style-type: none"> ▪ Appears natural and untouched by humans ▪ Gentle to steep terrain ▪ Excellent air quality ▪ Natural and/or cultural resource values so vulnerable that winter visitor use is not permitted

Management Zones→	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Visitor Experience	<ul style="list-style-type: none"> ▪ Natural attractions of high interest ▪ Moderate probability of encountering other visitors ▪ Chance to view the natural environment important ▪ Solitude occasionally possible, but not expected ▪ Moderate outdoor skills necessary ▪ Moderate opportunities for challenge and adventure ▪ Relatively quiet 	<ul style="list-style-type: none"> ▪ Provides a sense of a generally natural landscape ▪ Natural attractions of high interest ▪ High probability of encountering other users ▪ Solitude occasionally possible, but not expected ▪ Provides some sense of adventure ▪ Few outdoor skills needed ▪ Quiet desirable but not essential for visitor enjoyment 	<ul style="list-style-type: none"> ▪ Provides a sense of a generally natural landscape ▪ Natural attractions of high interest ▪ Moderate probability of encountering other users; probability increases near destination areas ▪ Low to moderate opportunities for solitude ▪ Feels somewhat distant from most comforts, conveniences, and facilities ▪ Generally requires a commitment to time-consuming and physically and mentally exerting activities ▪ Provides opportunities for adventure and physical challenge ▪ Outdoor skills needed ▪ Natural sounds predominate 	<ul style="list-style-type: none"> ▪ Provides a strong sense of immersion in a very natural landscape ▪ Natural quiet expected ▪ Low probability of encountering other users; good opportunities for solitude ▪ Provides strong sense of remoteness ▪ Requires a commitment to time-consuming and physically and mentally exerting activities ▪ Good opportunities for adventure and physical challenge ▪ Outdoor skills such as route finding, avalanche hazard forecasting, and survival knowledge necessary ▪ Natural sounds predominate; natural quiet is desirable 	<ul style="list-style-type: none"> ▪ Natural soundscapes predominate

ALTERNATIVE 2

Management Zones→	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Appropriate Activities and Facilities	<ul style="list-style-type: none"> ▪ Predominantly oversnow vehicular travel; some non-vehicular travel ▪ Oversnow roads, signs, barriers ▪ Interpretive displays ▪ Utilities, ▪ Restrooms, scenic overlooks, trailhead areas 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing; some administrative motorized vehicle travel necessary to accomplish grooming ▪ Oversnow trails, markers, signs, ▪ Interpretive media ▪ Scenic overlooks, trailheads 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ Signs or other route markers 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ No facilities, signs or route markers 	<ul style="list-style-type: none"> ▪ Limited resource management activities ▪ No visitor activities or facilities

Actions and Assumptions Common to All Units

- Phase in the use of only cleaner and quieter oversnow machines in the parks. Definition of “cleaner and quieter” and phase-in schedule as follows (all areas except Jackson Lake):
 - Snowmobiles: for all rental and outfitter sleds [70+% of existing use] – from year 1 (2003-2004) forward, allow any production model 4-stroke snowmobile and any other models¹⁴ whose engine family¹⁵ meets an emission requirement of 200 g/kW-hr (149 g/hp-hr) for CO and 75 g/kW-hr (56 g/hp-hr) for HC; for all “public snowmobiles” [other 30-%] – for years 1 through 3 (2003-2004, 2004-2005, and 2005-2006), allow any production model 4-stroke and any 2-stroke model using bio-base fuels¹⁶ (10% ethanol blend fuel and full synthetic low-emission oil); year 4 (2006-2007 season) and beyond - allow any production model 4-stroke snowmobile and any other models whose engine family meets an emission requirement of 200 g/kW-hr (149 g/hp-hr) for CO and 75 g/kW-hr (56 g/hp-hr) for HC.¹⁷ A decal signifying that a snowmobile model’s engine family meets the emission requirement will be issued for display on snowmobile windshields. Licensed selling/certification agents outside the park would issue these “national park” certification decals as part of the Wyoming commercial registration and user fee sales process.
 - Sound levels would not exceed 75 dB as measured on the A-weighted scale at 50 feet at 40 mph pass-by for all rental/outfitter sleds, year 1 and beyond. For public snowmobiles, sound levels would not exceed 78 dB as measured on the A-weighted scale at 50 feet at 40 mph pass-by for years 1 through 3. Beginning in year 4 (2006-2007), sound levels for all snowmobiles would not exceed 75 dB as measured on the A-weighted scale at 50 feet at 40 mph pass-by.
 - Snowcoaches: For the first five years, allow mass transit snowcoaches only when their sound levels are at or below 78 dB as measured on the A-weighted scale at 50 feet at 30 mph pass-by. After 5 years, allow mass transit snowcoaches only when their sound levels are at or below 75 dB as measured on the A-weighted scale at 50 feet at 30 mph pass-by. Continue to work with snowcoach manufacturers to decrease snowcoach sound levels.
 - For the first 5 years, any existing mass transit snowcoach (Bombardier, 2-track and 4-track conversion vans) irrespective of vehicle emissions shall be allowed to operate within

¹⁴ 4-stroke technology does not guarantee low pollution or noise emissions. To clarify: all snowmobiles, 2-stroke or 4-stroke, or other means of conveyance fitting the definition of “snowmobile,” are to meet the same standard for emissions expressed in this alternative feature.

¹⁵ The EPA certification process in which engines that are expected to have similar emission characteristics are classified in the same “engine family.” Engine families are used in the process by which manufacturers can develop credits as they work toward fleet averages for emissions. An engine family is more or less defined by combustion cycle (2 or 4 stroke), cooling system, design of emission controls, bore and stroke, etc. Alternately, an engine family can consist of engines with similar emission characteristics. In either case, as long as the park has a mechanism for limiting the type of sleds entering the park, the implementation of this alternative would be feasible. In any case, it would require a listing of which engine families certify as cleaner than the emission standard.

¹⁶ In this alternative, the use of bio-based fuels and synthetic oils should be mandatory for 2-stroke snowmobiles used in the parks.

¹⁷ EPA notes in its comments on this alternative that the 50% emissions reduction required after year 4 would not be consistent with its currently proposed regulations, which do not require such reductions until 2012. EPA believes implementation of this measure would not be feasible without a change in NPS authorities. Without this authority, EPA states that “the interim vehicle cap is the only factor in Alternative 2 that would change the air quality performance of the alternative from today’s conditions, potentially resulting in far less improvement to air quality than estimated in the Draft SEIS.”

the parks. Work with snowcoach manufacturers to decrease snowcoach emissions during the 5-year grace period. After 5 years, only “new concept snowcoaches” will be allowed to operate within the parks. “New concept snowcoaches” are defined as mass transit oversnow vehicles that are propelled by alternative fuels, have improved comfort and customer appeal, and have measured emission factors which meet or exceed emission standards of model year 2005 light duty gasoline trucks (LDGT).

- Require park administrative and park concessionaire snowmobiles to conform to the same sound and emission requirements and phase-in schedule as “outfitter/rental” snowmobiles, as budgets and contracts allow. Park administrative and concessionaire administrative snowcoaches must conform to the same sound and emission requirements as mass transit snowcoaches.
- Immediately implement interim snowmobile use limits until a visitor capacity study is completed prior to the 2006-2007 season (within 3 years). The visitor capacity study would use one or more of the Decision Analysis Tools identified by the Federal Interagency Task Force on Visitor Capacity on Public Lands (Haas 2002) to produce visitor experience and resource standards along with indicators for long-term visitor use management. Interim use limits and oversnow vehicle types are described by road segment in Table 5.
- Prohibit oversnow vehicle travel, except for administrative or emergency use, into or within the parks from 8 P.M. to 7:30 A.M.

Table 5. Interim use limits proposed under alternative 2.

Road Segment	Vehicle Type	Interim Use Levels [†]
Mammoth south to Old Faithful and east to Canyon and south to Fishing Bridge	Snowcoach and snowmobile travel	Snowmobiles entering through the North Entrance limited to 25 per day
West Entrance to Old Faithful	Snowcoach and snowmobile travel	Snowmobiles entering through the West Entrance limited to: <ul style="list-style-type: none"> ▪ 825 per day in 2003-2004, ▪ 725 per day in 2004-2005, ▪ 600 per day from 2005-2006 forward Reductions in use the second and third years would not occur without a commensurate number of seats available at West Yell. on “new concept snowcoaches.”
East Entrance to Fishing Bridge	Snowmobiles only	Snowmobiles entering through the East Entrance limited to 100 per day
Fishing Bridge south to Flagg Ranch and west to Old Faithful	Snowcoach and snowmobile travel	Snowmobiles entering through the South Entrance limited to 225 per day
CDST (East Entrance GTNP to Flagg Ranch)	Snowmobiles only	Snowmobiles entering through Moran Entrance limited to 75 per day, also accounting for up to 75 per day of the 225 allowed daily through the South Entrance
Grassy Lake Road	Snowmobiles only	Feeder trail to and from national forest trails and the CDST – daily caps not applicable

[†]The rationale for these numbers is expressed in the paper by Haas 2001. The State of Wyoming requested, in its comment letter, changes in the allowable daily use for all entrances in this alternative.

Actions Specific to Yellowstone

- Continue all existing groomed motorized routes (zone 3).
- Lower the speed limit to 35 mph from the West Entrance to Madison to Old Faithful, and further reduce speed limit to 25 mph in specific, special areas along this segment.
- Implement the winter use season during the period from mid-November to late March.
 - Mid-November to second Tuesday in December, access only by rubber track snowcoach, snowshoes or skis.
 - Second Wednesday in December through second Sunday in March, open to access by oversnow vehicles (snowmobiles and snowcoaches), dependant upon adequate snow cover on roadways.
 - Second Monday in March until road segments are plowed, access only by snowshoes or skis.
- Require personal non-recreation snowmobiles used by employees and their families living in the interior of Yellowstone to conform to the same requirements and phase-in schedule as “public” snowmobiles, as existing employment conditions allow. Subject to available funding and authority, provide administrative snowcoaches for their use.

Actions Specific to Grand Teton and the Parkway

- Provide groomed motorized routes on the Grassy Lake Road and on the CDST. The CDST will be located immediately adjacent to the plowed roadway on a widened shoulder/borrow ditch (as future opportunities present) from the East Entrance to Moran and from Moran to Flagg Ranch.
- Permit snowmobile outfitters to operate on the CDST and the Grassy Lake Road.
- Allow snowmobile access on the frozen surface of Jackson Lake for fishing access only, “directly to and from” a fishing area with fishing gear present on snowmobile or tow sled. Snowmobiles must use Bio-Base Fuels (10% ethanol and full synthetic low emission oil). Recreational snowmobile use on Jackson Lake would not be allowed.

Implementation Strategies for Alternative 2

Once a decision is made pursuant to this SEIS, which sets the program goals and plan in place for winter use in the parks, some strategies may be applied to assist in the implementation of the plan. Generally, these strategies are regarded as tools that currently exist within the parks’ authority to assist in *implementing* the plan. The environmental impacts, adverse or beneficial, of these strategies are not specifically addressed in this SEIS, as some actions may be categorically excluded or do not require an EIS for approval. Implementation strategies are like mitigation measures in that they may function to reduce anticipated impacts as well as facilitate the achievement of a plan goal.

- Establish an additional new daily entrance fee structure of \$10 per snowmobile and \$5 per snowcoach passenger.
- Establish a reservation system, with a timed entry limited system for all visitors. Snowmobile outfitters and gateway snowmobile rental businesses would automatically receive a daily allocation off-the-top in accordance with their operating permit (even rental shops would be required to be “permitted” by NPS to certify that their sleds meet all emission/sound requirements), not to exceed 80% of the daily entrance limit, after which public snowmobile reservations would be issued on a first-come, first-serve basis until the daily maximum entry for each gate is reached (and if the 80% was not fully utilized they would be released on a daily basis for “public” entries). A reservation system most likely would not be fully used until use limits are implemented which decrease historical use levels at particular entrances.

ALTERNATIVE 3

- Increase ranger patrols to target wildlife concentration areas and heavy visitor use areas. Strictly enforce speed limits and off-trail travel violations by motorized and nonmotorized visitors.
- Establish an aggressive Visitor Information Program for winter recreation use of the GYA with a goal of continual evaluation and improvement. Provide optional orientation briefings each evening in partnership with gateway communities and businesses to educate all users regarding their upcoming visit to the park and what they should know about visitor safety, operational laws, user etiquette, and interaction with wildlife and other park visitors.
- Require only pre-paid entrance permits, which have been issued by outlets in West Yellowstone in conjunction with the reservation system, for all snowmobiles entering through the West Entrance. All pre-paid permits must be clearly displayed on the snowmobile windshield or on the chest of the snowmobile driver with the permit expiration date clearly visible in large numbers to facilitate efficient express entry at the entrance plaza.
- Establish incentives to increase the percentage of snowmobiles with two passengers entering YNP from the West Entrance from the current 20% to 80% within 3 to 5 years.
- Establish incentives to increase the percentage of visitors using snowcoaches to enter YNP from the West Entrance from the current 10% to 30% over 3 to 5 years.
- Establish a “Bison Brigade,” consisting of trained volunteers, interns, and park rangers to make contact with visitors to provide safety and interpretive information and to provide escorts through wildlife-sensitive areas.
- Establish a “Park Watch” program to enlist visitors, snowcoach drivers and snowmobile guides to participate in reporting inappropriate behavior.
- Establish an interagency Yellowstone Recreation Advisory Council to assist recreation program management for the GYA.

ALTERNATIVE 3

This alternative (Figures 3 and 6) is an adaptive management strategy designed to mitigate impacts on visitor experience and access, wildlife, air quality and natural sound while allowing snowmobile access on all major oversnow routes. The identification of a visitor carrying capacity is a primary component of the adaptive management process under this alternative. This alternative describes a desired future condition for park resources and visitor experiences (Table 6). The adaptive management component of the alternative defines indicators of those experiences and resource conditions and establishes thresholds that describe at what point management must take action in order to maintain them.

Until that time, interim snowmobile use levels would be implemented. The interim use levels in this alternative were developed to mitigate the adverse effects of winter use on wildlife, visitor experience, air quality and natural sound that are described in the *Winter Use Plans Final Environmental Impact Statement for Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway* and the *Record of Decision for the Yellowstone and Grand Teton National Parks and the John D. Rockefeller Jr., Memorial Parkway*. Adaptive management programs would be implemented to assess the success of the interim numbers and assessed on an annual basis. The results of the adaptive management program would determine the need for adjusting snowmobile numbers up or down to ensure adequate protection of air quality, wildlife resources, visitor experience and natural soundscapes (as defined in *NPS Management Policies 2001*). Adaptive management and monitoring thresholds and indicators for this alternative are described in Table 12 and are located at the end of this chapter. The visitor carrying capacity component of adaptive management would incorporate the Visitor Experience Resource Protection (VERP) model (and others) and would be completed not later than 2006.

Table 6. Description of management zones for alternative 3.

Management Zones →	1 Destination or Support Area	2 Plowed Road	3 Groomed Motorized Route	4 Groomed Motorized Trail
Resource Condition or Character	<ul style="list-style-type: none"> Minimally to highly developed hubs of activity Facilities and signs of human activity obvious, but natural elements also present Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety As small as possible while still providing essential services Visitor use may compromise natural resource values 	<ul style="list-style-type: none"> As narrow as possible to protect resources, but wide enough to accommodate safety pullouts, overlooks, and trailhead areas Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety Good to excellent air quality Visitor use may compromise resource values 	<ul style="list-style-type: none"> Smooth groomed snow surface Generally gentle terrain Good to excellent air quality As narrow as possible to protect resources, but wide enough to accommodate safety pullouts, overlooks, and trailhead areas Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety Visitor use may compromise resource values Vehicles must meet sound and emission requirements 	<ul style="list-style-type: none"> Narrower, groomed but less maintained snow surface Gentle to moderate terrain Vehicles must meet sound and emission requirements Generally good to excellent air quality Occasional human caused sound, audibility low to moderate As narrow as possible to protect resources, but wide enough to accommodate pullouts, overlooks trailheads, and trailhead areas Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety Visitor use may compromise resource values

Management Zones →	1 Destination or Support Area	2 Plowed Road	3 Groomed Motorized Route	4 Groomed Motorized Trail
Visitor Experience	<ul style="list-style-type: none"> ▪ Facilities convenient and blended with adjacent resources ▪ Many opportunities for social interaction ▪ High sound levels possible ▪ High probability of encountering other visitors and NPS staff 	<ul style="list-style-type: none"> ▪ Destinations and natural attractions of high interest ▪ High probability of encountering other visitors ▪ Provides a sense of being in a natural park environment ▪ Visitor experience mostly visual ▪ Occasional quiet and solitude ▪ Commercial or residential traffic on some stretches ▪ Intermittent low to moderate sound associated with vehicular travel expected 	<ul style="list-style-type: none"> ▪ Destinations and natural attractions of high interest ▪ Provides a sense of being in a natural park environment ▪ High probability of encountering other visitors ▪ Solitude occasionally possible, but not expected ▪ Limited opportunities for challenge and adventure ▪ Few outdoor skills needed ▪ Some intermittent low-level to moderate sound associated with snowmachine travel expected 	<ul style="list-style-type: none"> ▪ Natural attractions of high interest ▪ Moderate probability of encountering other visitors ▪ Chance to view the natural environment important ▪ Solitude occasionally possible, but not expected ▪ Some outdoor skills necessary ▪ Some opportunities for challenge and adventure ▪ Relatively quiet; sight and smell of vehicle exhaust not expected
Appropriate Activities and Facilities	<ul style="list-style-type: none"> ▪ Visitor centers ▪ Warming huts ▪ Overnight lodging ▪ Gas stations ▪ Food services ▪ Staging areas ▪ Administrative facilities ▪ Structured interpretive programs 	<ul style="list-style-type: none"> ▪ Wheeled vehicular travel only ▪ Paved and unpaved roadways, signs, barriers ▪ Interpretive media and display ▪ Utilities ▪ Scenic overlooks, restrooms, trailhead areas, pullouts 	<ul style="list-style-type: none"> ▪ Predominantly oversnow vehicular travel; some non-vehicular travel ▪ Oversnow roads, signs, barriers ▪ Interpretive media, programs and displays ▪ Utilities ▪ Scenic overlooks, restrooms, trailhead areas, pullouts 	<ul style="list-style-type: none"> ▪ Predominantly oversnow vehicular travel; some non-vehicular travel ▪ Oversnow trails, signs, barriers ▪ Utilities, ▪ Scenic overlooks, trailhead areas, restrooms

Table 6 continued.

Management Zones→	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Resource Condition or Character	<ul style="list-style-type: none"> ▪ Ungroomed snow surface ▪ Marked except for frozen water surfaces ▪ Gentle to moderate terrain ▪ Vehicles must meet sound and emission requirements ▪ Generally good to excellent air quality ▪ Sound levels intermittent, low to moderate ▪ Wide enough to accommodate existing road corridor, pullouts, overlooks trailheads, trailhead areas ▪ Low to moderate modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety ▪ Visitor use may compromise resource values 	<ul style="list-style-type: none"> ▪ Smooth groomed snow surface ▪ Marked and signed ▪ Generally gentle terrain ▪ Creates predictable patterns of winter use and confines resource impacts to narrow corridors ▪ Good to excellent air quality ▪ Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Visitor use may compromise resource values ▪ Sound from human sources is intermittent, audibility is low to nonexistent ▪ Natural sound predominates the soundscape 	<ul style="list-style-type: none"> ▪ Ungroomed snow surface ▪ Marked or unmarked ▪ Gentle to steep terrain ▪ Creates fairly predictable patterns of winter use and confines resource impacts to relatively narrow corridors ▪ Excellent air quality ▪ Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Natural sound predominates the soundscape ▪ Visitor use may compromise resource values 	<ul style="list-style-type: none"> ▪ Appears natural and untouched by humans ▪ Gentle to steep terrain ▪ Excellent air quality ▪ Little to no evidence of visitor impacts ▪ Little to no modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Visitor use may compromise resource values ▪ Natural sound predominates 	<ul style="list-style-type: none"> ▪ Appears natural and untouched by humans ▪ Gentle to steep terrain ▪ Excellent air quality ▪ Natural and/or cultural resource values so vulnerable that winter visitor use is not permitted

Management Zones→	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Visitor Experience	<ul style="list-style-type: none"> ▪ Natural attractions of high interest ▪ Moderate probability of encountering other visitors ▪ Chance to view the natural environment important ▪ Solitude occasionally possible, but not expected ▪ Moderate outdoor skills necessary ▪ Moderate opportunities for challenge and adventure ▪ Relatively quiet; sight and smell of vehicle exhaust not expected 	<ul style="list-style-type: none"> ▪ Provides a sense of immersion in a generally natural landscape ▪ Natural attractions of high interest ▪ High probability of encountering other users ▪ Solitude occasionally possible, but not expected ▪ Provides some sense of adventure ▪ Few outdoor skills needed ▪ Quiet desirable but not essential for visitor enjoyment 	<ul style="list-style-type: none"> ▪ Provides a sense of immersion in a generally natural landscape ▪ Natural attractions of high interest ▪ Moderate probability of encountering other users; probability increases near destination areas ▪ Moderate opportunities for solitude ▪ Feels somewhat distant from most comforts, conveniences, and facilities ▪ Generally requires a commitment to time-consuming and physically and mentally exerting activities ▪ Provides opportunities for adventure and physical challenge ▪ Outdoor skills needed ▪ Natural sounds predominate natural quiet is desirable 	<ul style="list-style-type: none"> ▪ Provides a strong sense of immersion in a very natural landscape ▪ Natural quiet expected ▪ Low probability of encountering other users; good opportunities for solitude ▪ Provides strong sense of remoteness ▪ Requires a commitment to time-consuming and physically and mentally exerting activities ▪ Good opportunities for adventure and physical challenge ▪ Outdoor skills such as route finding, avalanche hazard forecasting, and survival knowledge necessary ▪ Natural sounds predominate natural quiet is desirable 	<ul style="list-style-type: none"> ▪ Natural soundscapes predominate

Management Zones→	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Activities and Facilities	<ul style="list-style-type: none"> ▪ Predominantly oversnow vehicular travel; some non-vehicular travel ▪ Oversnow roads, signs, barriers ▪ Interpretive displays ▪ Utilities, ▪ Restrooms, scenic overlooks, trailhead areas 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ Oversnow trails, markers, signs, ▪ Interpretive media ▪ Scenic overlooks, trailheads 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ Signs or other route markers 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ No facilities 	<ul style="list-style-type: none"> ▪ Limited resource management activities ▪ No visitor activities or facilities

Actions and Assumptions Common to All Units

- New cleaner and quieter snowmachine technologies would be required for all recreational oversnow vehicles entering the parks. This requirement would be implemented through the issuance of outfitter and guide permits by the NPS. Initially, emission and sound requirements would be based on current BAT and evaluated annually under an adaptive management framework. The requirement to meet the BAT will remain ongoing. The yearly evaluation would result in an adjustment of snowmobile use limits if necessary for protection of air quality, wildlife, visitor experience, and natural soundscapes (as defined by NPS policy) as determined by monitoring.
- The NPS Organic Act authorizes the Secretary to make such rules as are necessary to “conserve the scenery and the natural and historic objects and the wildlife” of national parks. The BAT approach in alternative 3 is not a restriction on what manufacturers may produce but an end-use restriction on which commercially produced snowmobiles may be used in the parks. This exercise of the NPS Organic Act authority is not an effort by the NPS to regulate manufacturers and is consistent with Sec. 310 of the Clean Air Act, which preserves the authority of other federal agencies.
- **Objective of the Best Available Technology Requirement:** The requirement for BAT is to ensure that the oversnow vehicles used in Yellowstone and Grand Teton National Parks are the cleanest and quietest commercially available under current technology, and to ensure that oversnow machines will continuously improve. The NPS would encourage manufacturers to develop snowmobiles that reduce not only the NAAQS criteria pollutants, but other emissions of concern, such as air toxics. Unwanted sound from snowmobiles (noise) will also be reduced under this program.
- **Current Snowmobile Emissions Requirement:** Current snowmobile BAT is believed to be the production 4-stroke engines available from Arctic Cat and Polaris and potentially available from other manufacturers. Therefore the approach for the winter of 2003-2004 shall be to set BAT as any snowmobile that is capable of reducing HC emissions by 90% and CO emissions by 70% from EPA’s baseline snowmobile assumptions. Although test results indicate that greater reductions in HC and CO are attainable in some production machines, the initial BAT requirement was set at 90/70 to assure several manufacturers could achieve the initial requirement (see Chapter III regarding BAT).
- All snowmobiles entering the three parks beginning in 2003-2004 must meet the reduction in snowmobile engine emissions equal to or better than the reductions given above. In the future, in cooperation with manufacturers, the NPS will publish a list annually of commercially available snowmobile types that meet BAT requirement. The program would require the manufacturers to test the machines using the approved Society of Automotive Engineers procedures. The certification would be good for six years, in the absence of further testing. During the winter of 2003-2004 and 2004-2005, the BAT requirement given above would be enforced. Through a monitoring program, air quality parameters will be monitored and various aspects of snowmobile use will be adjusted accordingly (e.g., numbers per day, number per hour).

Current Snowmobile Sound Requirement: Current BAT is believed to be the production 4-stroke engines available from Arctic Cat and Polaris and potentially available from other manufacturers. Therefore the approach for the winter of 2003-2004 shall be to set BAT as any snowmobile that is capable of an output of 73 dB(A) or less, as measured at full throttle according to the SAE J192 test procedures.¹⁸ In the future, in cooperation with the

¹⁸ “Exterior sound level for snowmobiles,” Society of Automotive Engineers, SAE J192, SAE Recommended Practice, March 1985.

manufacturers, the NPS will publish a list annually of snowmobile types that meet the BAT requirements. The program would rely on the manufacturers to test the machines using the approved SAE J192 procedures. The certification would be good for six years, in the absence of further testing. During the winter of 2003-2004 and 2004-2005, the BAT requirement given above would be enforced. Through a monitoring program, natural soundscape will be monitored and various aspects of snowmobile use will be adjusted accordingly (e.g. numbers per day, numbers per hour).

- **Continuous Improvement Requirement:** NPS expects that snowmobile manufacturers will conduct ongoing research to continually improve sound and emissions in a line of available production machines. Information on the full spectrum of pollutant criteria is critical information as this alternative is phased in to ensure that an inadvertent increase in some pollutants does not occur. Without continuous improvement, it is possible that the initial generation of machines will not meet adaptive management thresholds over time, and other measures such as reduced numbers will need to be imposed.
- **Snowcoach Best Available Technology:** The intention of the NPS is to encourage investment in snowcoach technology. Therefore, all historic snowcoaches (such as Bombardiers) would initially be exempt from BAT requirements. However NPS would work with snowcoach owners to retrofit historic snowcoaches to meet BAT. For non-historic snowcoaches, BAT emission requirements would be the same as those for snowmobiles: 120 g/kW-hr for CO and 15 g/kW-hr for HC. The initial snowcoach sound target would be 75 dB by 2008. As new technology snowcoaches are developed (see discussion of “new generation snowcoach” in the Best Available Technology section of Chapter III), these requirements would be revisited.
- **Implementation:** A number of questions will need to be resolved as the BAT program is implemented. These include how machine- or engine-specific the certification will be, how to determine if modifications have been made that affect sound and air emissions and if the snowmachine is operating properly, incentives to encourage improvement, and disincentives to discourage machines from getting worse.
- Establish a winter visitor carrying capacity for all three park units. The carrying capacity would be determined by defining the desired future condition for park resources and visitor experiences, the indicators of a quality experience and resource conditions and the establishing of thresholds that describe at what point management must take action beyond that which is to be described in the decision resulting from this SEIS. In addition a monitoring program would be developed and implemented and the responsive management actions would be defined. The visitor carrying capacity study would include a public participation component and utilize the NPS approved Visitor Experience Resource Protection (VERP) Framework and other appropriate methodologies. The study would be completed no later than May 2006, subject to available funding.
- Implement interim snowmobile use limits until the visitor carrying capacity study is completed. Under this alternative, the initial interim limits would be based on the level of effect on wildlife, visitor experience, air quality and natural soundscape that were determined in the *Winter Use Plans Final Environmental Impact Statement for Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway*. The implementation of use limits may require one of the following: reservations, permits or differential fees. The initial interim use limits and vehicle types are described by road segment in Table 7.
- Implement an intensive adaptive management and monitoring program to ensure that desired resource conditions and visitor experiences are met. The initial monitoring and adaptive management thresholds and indicators are defined in Table 12.

- Prohibit late night oversnow recreation travel from about 8 P.M. to 7:30 A.M. Travel during this period of time may be approved by the park superintendent for administrative or emergency purposes, or by special permit.
- In the winter of 2003-2004, allow existing commercial snowcoach operators to increase their fleet size and encourage snowmobile and other new operators to purchase coaches and reduce snowmobile numbers.
 - In 2003-2004 allow snowmobile use to the current use level in YNP and GTNP and the Parkway.
 - In 2004-2005, implement interim snowmobile limits.
- In 2003-2004, recreational snowmobile access would be allowed in the parks and the Parkway only when accompanied by an NPS permitted guide. Guided groups may contain from 3 to 11 snowmobiles including the guide.

Table 7. Interim use limits proposed under alternative 3.

Road Segment	Vehicle Type	Interim Use Levels [†]
Mammoth south to Old Faithful and east to Canyon and south to Fishing Bridge	Snowcoach and snowmobile travel	Snowmobiles entering through the North Entrance limited to 100 per day
West Entrance to Old Faithful	Snowcoach and snowmobile travel	Snowmobiles entering through the West Entrance limited to 330 snowmobiles per day
East Entrance to Fishing Bridge	Snowmobiles only	Snowmobiles entering through the East Entrance limited to 100 per day
Fishing Bridge south to Flagg Ranch and west to Old Faithful	Snowcoach and snowmobile travel	Snowmobiles entering through the South Entrance limited to 400 per day
CDST (East Entrance GTNP to Colter Bay)	Snowmobiles only	Snowmobiles limited to 100 per day
Colter to Flagg Ranch (highway surface) [‡]	Snowcoach and snowmobile travel	Snowmobiles limited to 100 per day
Grassy Lake Road	Snowmobiles and snowcoaches	Snowmobiles limited to 100 per day

[†] Levels are set to accommodate current average daily use except for West Yellowstone, Montana, where use is lower to provide a starting point to mitigate multiple resource impacts from West Yellowstone to Old Faithful resulting from present levels of use. The experiences of park rangers and other staff indicate that use over about 300 snowmobiles causes deterioration of the snow surface on some days.

[‡] Current Flagg Ranch permit will be honored concerning access by plowed road until the current permit expires on December 31, 2009.

Actions Specific to Yellowstone

- Continue all existing major groomed motorized routes (zone 3).
- Implement the winter use season during the period from late November to mid-March.
- Allow early season travel (after roads close to wheeled vehicles but before oversnow travel is possible) by only rubber track vehicles until sufficient snow for snowmachines has accumulated.
- To allow for a period of quiet recreation opportunities beginning the Friday following Presidents Day weekend, allow access in YNP only via snowcoach, snowshoes or skis.
- Reduce administrative snowmobile use from the 106 currently used and supplement with administrative snowcoaches, subject to available funding and authority. Phase in a limited number of administrative snowmobiles to a type that meet the best available emission and sound limits.
- Continue allowing personal non-recreation use of snowmobiles by employees and their families living in the interior of Yellowstone. This use will not count against daily entry limits. Subject to available funding and authority, provide administrative snowcoaches for their use and implement programs to replace their current snowmobiles with snowmobiles that utilize the best clean and quiet technologies available to meet NPS requirements.
- Allow limited use of snowmobiles by concessionaires. Require (through permits and contracts) best available clean and quiet technologies as they are developed and encourage the use of snowcoaches.
- During the winter of 2004-2005, if at least 600 daily snowcoach seats are not available for visitors parkwide, allow up to 220 more snowmobiles to enter through the West Entrance each day (the daily ceiling would not exceed 550 snowmobiles through the West Entrance for that winter season) so that historical average use levels are maintained. The number of coach seats will be determined as of December 1 for the upcoming winter.

Actions Specific to Grand Teton and the Parkway

- Continue access to Flagg Ranch by plowed road at least until the current concessions contract expires on December 31, 2009.
- Continue existing motorized routes (zone 3), except on the Teton Park Road and the frozen surface of Jackson Lake.

ALTERNATIVE 4 — PREFERRED ALTERNATIVE

The concept for this alternative is to arrive, over time, at a sustainable level of winter motorized recreation use, including snowmobiles, that protects resource values. This alternative describes a desired future condition for park resources and visitor experiences (Table 8). Alternative 4 (see Figures 3 and 6) is an adaptive management strategy to mitigate impacts on visitor experience and access, wildlife, air quality and natural sound while allowing snowmobile access on all major oversnow routes. The identification of an appropriate level of visitation is a primary component of the adaptive management process under this alternative. This level would be identified and achieved by monitoring indicators of a quality experience and desired resource conditions, by management zone. Monitoring data would be compared to thresholds that describe the point at which management actions must be taken.

Table 8. Description of management zones for alternative 4 – the preferred alternative.

Management Zones →	1 Destination or Support Area	2 Plowed Road	3 Groomed Motorized Route	4 Groomed Motorized Trail
Resource Condition or Character	<ul style="list-style-type: none"> Minimally to highly developed hubs of activity Facilities and signs of human activity obvious, but natural elements also present Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety As small as possible while still providing essential services Visitor use may compromise natural resource values 	<ul style="list-style-type: none"> As narrow as possible to protect resources, but wide enough to accommodate safety pullouts, overlooks, and trailhead areas Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety Good to excellent air quality Visitor use may compromise resource values 	<ul style="list-style-type: none"> Smooth groomed snow surface Generally gentle terrain Good to excellent air quality As narrow as possible to protect resources, but wide enough to accommodate safety pullouts, overlooks, and trailhead areas Moderate to high management and/or modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety Visitor use may compromise resource values Vehicles must meet sound and emission requirements 	<ul style="list-style-type: none"> Narrower, groomed but less maintained snow surface Gentle to moderate terrain Vehicles must meet sound and emission requirements Generally good to excellent air quality Occasional human caused sound, audibility low to moderate As narrow as possible to protect resources, but wide enough to accommodate pullouts, overlooks trailheads, and trailhead areas Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety Visitor use may compromise resource values
Visitor Experience	<ul style="list-style-type: none"> Facilities convenient and blended with adjacent resources Many opportunities for social interaction High sound levels possible High probability of encountering other visitors and NPS staff 	<ul style="list-style-type: none"> Destinations and natural attractions of high interest High probability of encountering other visitors Provides a sense of being in a natural park environment Visitor experience mostly visual Occasional quiet and solitude Commercial or residential traffic on some stretches Intermittent low to moderate sound associated with vehicular travel expected 	<ul style="list-style-type: none"> Destinations and natural attractions of high interest Provides a sense of being in a natural park environment High probability of encountering other visitors Solitude occasionally possible, but not expected Limited opportunities for challenge and adventure Few outdoor skills needed Some intermittent low-level to moderate sound associated with snowmachine travel expected 	<ul style="list-style-type: none"> Natural attractions of high interest Moderate probability of encountering other visitors Chance to view the natural environment important Solitude occasionally possible, but not expected Some outdoor skills necessary Some opportunities for challenge and adventure Relatively quiet; sight and smell of vehicle exhaust not expected

Management Zones →	1 Destination or Support Area	2 Plowed Road	3 Groomed Motorized Route	4 Groomed Motorized Trail
Appropriate Activities and Facilities	<ul style="list-style-type: none"> ▪ Visitor centers ▪ Warming huts ▪ Overnight lodging ▪ Gas stations ▪ Food services ▪ Staging areas ▪ Administrative facilities ▪ Structured interpretive programs 	<ul style="list-style-type: none"> ▪ Wheeled vehicular travel only ▪ Paved and unpaved roadways, signs, barriers ▪ Interpretive media and display ▪ Utilities ▪ Scenic overlooks, restrooms, trailhead areas, pullouts 	<ul style="list-style-type: none"> ▪ Predominantly oversnow vehicular travel; some non-vehicular travel ▪ Oversnow roads, signs, barriers ▪ Interpretive media, programs and displays ▪ Utilities ▪ Scenic overlooks, restrooms, trailhead areas, pullouts 	<ul style="list-style-type: none"> ▪ Predominantly oversnow vehicular travel; some non-vehicular travel ▪ Oversnow trails, signs, barriers ▪ Utilities, ▪ Scenic overlooks, trailhead areas, restrooms

Table 8 continued.

Management Zones→	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Resource Condition or Character	<ul style="list-style-type: none"> ▪ Ungroomed snow surface ▪ Gentle to moderate terrain ▪ Vehicles must meet sound and emission requirements ▪ Generally good to excellent air quality ▪ Sound levels intermittent, low to moderate ▪ Wide enough to accommodate existing road corridor, pullouts, overlooks trailheads, trailhead areas ▪ Low to moderate modification of resources to accommodate operational needs, resource protection, visitor enjoyment, and safety ▪ Visitor use may compromise resource values 	<ul style="list-style-type: none"> ▪ Smooth groomed snow surface ▪ Marked and signed ▪ Generally gentle terrain ▪ Creates predictable patterns of winter use and confines resource impacts to narrow corridors ▪ Good to excellent air quality ▪ Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Visitor use may compromise resource values ▪ Sound from human sources is intermittent, audibility is low to nonexistent ▪ Natural sound predominates the soundscape 	<ul style="list-style-type: none"> ▪ Ungroomed snow surface ▪ Marked or unmarked ▪ Gentle to steep terrain ▪ Creates fairly predictable patterns of winter use and confines resource impacts to relatively narrow corridors ▪ Excellent air quality ▪ Minimal modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Natural sound predominates the soundscape ▪ Visitor use may compromise resource values 	<ul style="list-style-type: none"> ▪ Appears natural and untouched by humans ▪ Gentle to steep terrain ▪ Excellent air quality ▪ Little to no evidence of visitor impacts ▪ Little to no modification of resources to accommodate operational needs, resource protection, visitor enjoyments, and safety ▪ Visitor use may compromise resource values ▪ Natural sound predominates 	<ul style="list-style-type: none"> ▪ Appears natural and untouched by humans ▪ Gentle to steep terrain ▪ Excellent air quality ▪ Natural and/or cultural resource values so vulnerable that winter visitor use is not permitted

Management Zones→	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Visitor Experience	<ul style="list-style-type: none"> ▪ Natural attractions of high interest ▪ Moderate probability of encountering other visitors ▪ Chance to view the natural environment important ▪ Solitude occasionally possible, but not expected ▪ Moderate outdoor skills necessary ▪ Moderate opportunities for challenge and adventure ▪ Relatively quiet; sight and smell of vehicle exhaust not expected 	<ul style="list-style-type: none"> ▪ Provides a sense of immersion in a generally natural landscape ▪ Natural attractions of high interest ▪ High probability of encountering other users ▪ Solitude occasionally possible, but not expected ▪ Provides some sense of adventure ▪ Few outdoor skills needed ▪ Quiet desirable but not essential for visitor enjoyment 	<ul style="list-style-type: none"> ▪ Provides a sense of immersion in a generally natural landscape ▪ Natural attractions of high interest ▪ Moderate probability of encountering other users; probability increases near destination areas ▪ Moderate opportunities for solitude ▪ Feels somewhat distant from most comforts, conveniences, and facilities ▪ Generally requires a commitment to time-consuming and physically and mentally exerting activities ▪ Provides opportunities for adventure and physical challenge ▪ Outdoor skills needed ▪ Natural sounds predominate natural quiet is desirable 	<ul style="list-style-type: none"> ▪ Provides a strong sense of immersion in a very natural landscape ▪ Natural quiet expected ▪ Low probability of encountering other users; good opportunities for solitude ▪ Provides strong sense of remoteness ▪ Requires a commitment to time-consuming and physically and mentally exerting activities ▪ Good opportunities for adventure and physical challenge ▪ Outdoor skills such as route finding, avalanche hazard forecasting, and survival knowledge necessary ▪ Natural sounds predominate natural quiet is desirable 	<ul style="list-style-type: none"> ▪ Natural soundscapes predominate

Management Zones→	5 Ungroomed Motorized Trail or Area	6 Groomed Nonmotorized Trail	7 Ungroomed Nonmotorized Trail or Area	8 Backcountry Nonmotorized Area	9 Sensitive Area (no winter use)
Activities and Facilities	<ul style="list-style-type: none"> ▪ Predominantly oversnow vehicular travel; some non-vehicular travel ▪ Oversnow roads, signs, barriers ▪ Interpretive displays ▪ Utilities, ▪ Restrooms, scenic overlooks, trailhead areas 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ Oversnow trails, markers, signs, ▪ Interpretive media ▪ Scenic overlooks, trailheads 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ Signs or other route markers 	<ul style="list-style-type: none"> ▪ Nonmotorized activities only, such as skiing and snowshoeing ▪ No facilities 	<ul style="list-style-type: none"> ▪ Limited resource management activities ▪ No visitor activities or facilities

An interim level of snowmobile use would be implemented during the winter of 2003-2004 and 2004-2005 to maintain historical winter visitation to the parks (see Table 9). Adaptive management and monitoring programs would be implemented to allow the interim numbers to be assessed annually. The results of the adaptive management program would determine the need for adjusting snowmobile numbers up or down to ensure adequate protection of air quality, wildlife resources, visitor experience, and natural soundscapes (as defined in NPS Management Policies 2001). The first year in which adjustment, based on adaptive management, would occur is 2005-2006. Adaptive management and monitoring thresholds and indicators are described in Table 12.

Actions and Assumptions Common to All Units

- The intent of this alternative is to provide opportunities for historical levels of visitation based on the average of the past ten years. Visitation and access to the parks would be available in a mix of snowmobiles and snowcoaches. Implementation of this alternative would be intended to encourage continuous improvement in snowmobile technology available for use in the parks, as well as development, production and use of a new generation of snowcoach. Both modes of access would meet a BAT requirement, whereupon snowcoach use and occupancy would be emphasized over individual access.
- New cleaner and quieter snowmachine technologies would be required for all recreational oversnow vehicles entering the parks. This requirement would be implemented through the issuance of outfitter and guide permits by the NPS. Initially, emission and sound requirements would be based on current BAT and evaluated annually under an adaptive management framework. The requirement to meet BAT will remain ongoing. The yearly evaluation would result in an adjustment of snowmobile use limits if necessary for protection of air quality, wildlife, visitor experience, and natural soundscapes (as defined by NPS policy) as determined by monitoring.
- The NPS Organic Act authorizes the Secretary to make such rules as are necessary to “conserve the scenery and the natural and historic objects and the wildlife” of national parks. The BAT approach in alternative 4 is not a restriction on what manufacturers may produce but an end-use restriction on which commercially produced snowmobiles may be used in the parks. This exercise of the NPS Organic Act authority is not an effort by the NPS to regulate manufacturers and is consistent with Sec. 310 of the Clean Air Act, which preserves the authority of other federal agencies.
- **Objective of the Best Available Technology Requirement:** The BAT requirement is to ensure that the oversnow vehicles used in Yellowstone and Grand Teton National Parks are the cleanest and quietest commercially available under current technology, and to ensure that oversnow machines will continuously improve. The NPS would encourage manufacturers to develop snowmobiles that reduce not only the NAAQS criteria pollutants, but other emissions of concern, such as air toxics. Unwanted sound from snowmobiles (noise) will also be reduced under this program.
- In cooperation with manufacturers, NPS will annually publish a list of snowmobile makes and models that meet the BAT requirements. The program would rely on manufacturers to test the machines using approved Society of Automotive Engineers procedures. Each snowmobile model would be certified for entry into the parks for six years after the time it was published on the list.
- **Current Snowmobile Emissions Requirement:** Current snowmobile BAT is believed to be the production 4-stroke engines available from Arctic Cat and Polaris and potentially available from other manufacturers. Therefore the approach for the winter of 2003-2004 shall be to set BAT as any snowmobile that is capable of reducing HC emissions by 90% and CO emissions by 70% from EPA’s baseline assumptions. Although test results indicate that greater reductions in HC and CO are attainable in some production machines, the initial BAT

requirement was set at 90/70 to assure several manufacturers could achieve the initial requirement (see Chapter III regarding BAT).

- All commercially guided snowmobiles entering the three parks beginning in 2003-2004 must meet the reduction in snowmobile engine emissions equal to or better than the reductions given above. In the 2004-2005 season, all snowmobiles entering the parks would be required to meet BAT. Through a monitoring program, air quality parameters will be monitored and various aspects of snowmobile use will be adjusted accordingly (e.g., numbers per day, number per hour).
- **Current Snowmobile Sound Requirement:** Current BAT is believed to be the production 4-stroke engines available from Arctic Cat and Polaris and potentially available from other manufacturers. Therefore the approach for the winter of 2003-2004 shall be to set BAT as any snowmobile that is capable of an output of 73 dB(A) or less, as measured at full throttle according to the SAE J192 test procedures. All commercially guided snowmobiles entering the three parks beginning in 2003-2004 must meet the BAT sound requirements. In the 2004-2005 season, all snowmobiles entering the parks would be required to meet BAT. Through a monitoring program, the natural soundscape will be monitored and various aspects of snowmobile use will be adjusted accordingly (e.g., numbers per day, numbers per hour).
- **Continuous Improvement Requirement:** NPS expects that snowmobile manufacturers will conduct ongoing research to continually improve sound and emissions in a line of available production machines. Information on the full spectrum of pollutant criteria is critical information as this alternative is phased in to ensure that an inadvertent increase in some pollutants does not occur. Without continuous improvement, it is possible that the initial generation of machines will not meet adaptive management thresholds over time, and other measures such as reduced numbers will need to be imposed.
- **Snowcoach Best Available Technology:** The intention of the NPS is to encourage investment in snowcoach technology. Therefore, all historic snowcoaches (such as Bombardiers) would initially be exempt from BAT requirements. However NPS would work with snowcoach owners to retrofit historic snowcoaches to meet BAT. For non-historic snowcoaches, BAT emission requirements would be the same as those for snowmobiles: 120 g/kW-hr for CO and 15 g/kW-hr for HC. The initial snowcoach sound target would be 75 dB by 2008. As new technology snowcoaches are developed (see discussion of “new generation snowcoach” in the Best Available Technology section of Chapter III), these requirements would be revisited.
- **Implementation:** A number of questions will need to be resolved as the BAT program is implemented. These include how machine- or engine-specific the certification will be, how to determine if modifications have been made that affect sound and emissions and if the snowmachine is operating properly, incentives to encourage improvement, and disincentives to discourage machines from getting worse.
- In 2003-2004, all recreational snowmobiles entering the parks would be through the use of trained guides. Eighty percent of the daily entries through each entrance will be by way of commercially guided tours similar to those currently operating in the parks. The remaining 20% of entries will be available for non-commercially self-guided trips that require a member of the group to be certified by the NPS to lead a group of snowmobilers. Guided groups may contain from 2 to 11 snowmobiles including the guide.
- Establish a winter visitor carrying capacity for all three park units. The carrying capacity would be determined by defining the desired future condition for park resources and visitor experiences, the indicators of a quality experience and resource conditions and the establishment of thresholds that describe at what point management must take action beyond that which is to be described in the decision resulting from this SEIS. In addition a monitoring program would be developed and implemented and the responsive management actions would be defined. The visitor carrying capacity study would include a public participation

component and utilize the NPS approved VERP Framework and other appropriate methodologies. The study would be completed no later than May 2006, subject to available funding.

- When monitoring identifies a violation of a threshold, a change in management would be indicated. A downward alteration in allowable numbers of snowmobiles could be implemented by closing areas or road segments or dropping entrance limits, permanently, seasonally, or for periods of time within a given winter season. Any such action would occur only after two years of use and monitoring at the interim level, except for immediate actions necessary under regulatory direction provided in 36 CFR 1.5 and 2.18. An upward alteration in numbers could be occasioned by effectively demonstrating through monitoring that there would be no further impact in doing so, especially if other mitigation is applied or if emissions and sound characteristics of snowmobiles are demonstrably improved.
- Develop a training program with the cooperation of operators, businesses and user groups to orient and educate potential non-commercial guides for certification by the NPS. The training is intended to be comprehensive. There would be a nominal fee and the certification would last for one season.
- In cooperation with gateway communities, businesses, counties, and state tourism organizations, develop a reservation system for the effective utilization of the 20% daily non-commercial entry limits.
- Implement an intensive adaptive management and monitoring program to ensure that desired resource conditions and visitor experiences are met. The initial monitoring and adaptive management thresholds and indicators are described in Table 12.
- Prohibit late night oversnow recreation travel from about 8 P.M. to 7:00 A.M. Travel during this period of time may be approved by the park superintendent for administrative or emergency purposes, or by special permit for necessary travel.
- In the winters of 2003-2005, allow existing commercial snowcoach operators to increase their fleet size and encourage snowmobile and other new operators to purchase coaches and reduce snowmobile numbers.
- In 2003-2004 and 2004-2005, implement interim snowmobile limits (see Table 9).
- Continue to facilitate efforts for the research, development, production and purchase of a “new generation snowcoach.”

Table 9. Interim use limits proposed under alternative 4 – the preferred alternative.

Road Segment	Vehicle Type	Interim Use Levels
Mammoth south to Old Faithful and east to Canyon and south to Fishing Bridge	Snowcoach and snowmobile travel	Snowmobiles entering through the North Entrance limited to 50 per day
West Entrance to Old Faithful	Snowcoach and snowmobile travel	Snowmobiles entering through the West Entrance limited to 550 snowmobiles per day
East Entrance to Fishing Bridge	Snowmobiles only	Snowmobiles entering through the East Entrance limited to 100 per day
Fishing Bridge south to Flagg Ranch and west to Old Faithful	Snowcoach and snowmobile travel	Snowmobiles entering through the South Entrance limited to 250 per day
CDST (East Entrance GTNP to Colter Bay)	Snowmobiles only	Snowmobiles limited to 75 per day
Colter Bay to Flagg Ranch	Snowcoach and snowmobile travel	Snowmobiles included in CDST total
Grassy Lake Road	Snowmobiles and snowcoaches	Snowmobiles limited to 75 per day

Actions Specific to Yellowstone

- Continue all existing major groomed motorized routes (zone 3).
- Implement the winter use season during the period from late November to mid-March.
- Allow early season travel by only rubber track vehicles until sufficient snow for snowmachines has accumulated.
- Reduce administrative snowmobile use from the 106 currently used and supplement with administrative snowcoaches, subject to available funding and authority. Phase in a limited number of administrative snowmobiles to a type that meet the best available emission and sound limits.
- Continue allowing personal non-recreation use of snowmobiles by employees and their families living in the interior of Yellowstone. This use will not count against daily entry limits. Subject to available funding and authority, provide administrative snowcoaches for their use and implement programs to replace their current snowmobiles with snowmobiles that utilize the best clean and quiet technologies available to meet NPS requirements.
- Allow limited use of snowmobiles by concessionaires. Require (through permit and contracts) BAT as they are developed and encourage the use of snowcoaches.
- Lower the speed limit to 35 mph from the West Entrance to Madison to Old Faithful, and further reduce speed limit to 25 mph in specific, special areas along this segment.

Actions Specific to Grand Teton and the Parkway

- Continue access to Flagg Ranch by plowed road at least until the current concessions contract expires on December 31, 2009.

- Continue existing motorized routes (zone 3), except on the Teton Park Road and the frozen surface of Jackson Lake. In 2002-2003 for GTNP, snowmobile use on the Teton Park Road and all snowplane use on Jackson Lake was eliminated.

Mitigation

- Monitoring and adaptive management are critical components of this alternative, and the mitigation of continued snowmobile use is contingent upon funding and implementation of monitoring and adaptive management sufficient to gage the multiple resource impacts of snowmobiles in a site-specific manner. If there is insufficient funding to fully implement monitoring and adaptive management programs, park managers would implement management options identified in Table 12 to protect park resources. Monitoring and analysis must be sufficient to develop visitor experience thresholds using a VERP approach, and subsequently to measure the impacts of snowmobiles against those thresholds. Monitoring costs are provided in Appendix D.
- Instances of noncompliance regarding BAT, allowable visitor-days, or other permit requirements by NPS permitted commercial guides will be addressed by standard permit administration practices.
- One instance of noncompliance regarding BAT, allowable visitor-days, or other permit requirements by NPS permitted noncommercial guides will result in immediate permit revocation. Multiple instances of noncompliance by noncommercial guides in one year may result in reallocation of the commercial:non-commercial guide ratio.

RATIONALE FOR THE PREFERRED ALTERNATIVE

Alternative 4 is the SEIS preferred alternative. It was added to the range of alternatives from the Draft SEIS, in which no preferred alternative was designated. Specific details related to why this alternative was determined to be the preferred are discussed below. However, the success of the preferred alternative at preventing impairment to park resources and values depends upon all of these details being fully implemented.

Rationale for Using a Best Available Technology Requirement Versus Reliance on the EPA Rule

Alternatives 3 and 4 would implement a BAT requirement to limit the types of machines allowed to enter the parks in order to reduce air pollution and sound emissions. The requirement for BAT would be implemented through the issuance of outfitter and guide permits by NPS. Alternative 2 would, in essence, rely on the EPA rule to set standards for vehicles. To implement the latter, NPS would be requiring emissions reductions from the rule six years before the rule would require them. Requiring BAT will ensure that all snowmobiles entering the parks take advantage of technological improvements, so they are the cleanest and quietest machines in production. In fact, current BAT snowmobiles are much cleaner than the EPA rule. The EPA rule, in 2012, requires HC and CO reductions of 50%. Current BAT snowmobiles are capable of reducing HC by 95%-98% and CO by 85%—a far greater reduction than required by the EPA rule, which does not take effect until 2012. Furthermore, the EPA rule relies on the concept of “fleet averaging,” which means that snowmobiles, on average, would meet the 50/50 standard (see the discussion of the EPA’s rule in Chapter 3). There would be no guarantee that snowmobiles actually entering the parks meet these emissions reductions. Additional details about how BAT would be implemented are provided in the descriptions of alternatives 3 and 4.

Use of NPS Permitted Guides for Recreational Travel

Alternative 3 requires the use of NPS permitted commercial guides to ensure mitigation for the use of snowmobiles. Permitted commercial guides must adhere to the terms of their permits, on which their livelihoods depend. Commercial guides are educated in safety, interpretive skills, and appropriate actions for avoiding or minimizing resource impacts. In this case, they would be responsible under their permit for ensuring all snowmobiles entering the parks under their charge conform to the required technology for sound and emissions. Commercial guides would work on a schedule, have suitable control over their clientele, and have a working knowledge of how to deal with wildlife conflicts – all of which are necessary to reduce impacts on wildlife. Commercial guides also tend to travel in larger sized groups, which reduce the number of overall encounters with wildlife. Such guides would allow a far greater margin of safety for novice riders who are at risk in riding unaccompanied by a guide. In addition, guides have the capability to provide a positive and informative recreation experience for all levels of users who wish to experience the park and its resources. Use of commercial guides would contribute heavily to better compliance with park regulations and speed limits without putting the entire burden on NPS to fund high levels of enforcement.

Alternative 4, the preferred alternative, requires that 80% of the daily entries through each entrance will be by way of commercially guided concessioner-operated tours similar to those currently operating in the parks, with the benefits described above. The remaining 20% of daily entries will be available for non-commercially guided trips that require a member of the group to be certified by the NPS to lead a group of snowmobiles. This allowance for non-commercial guides responds to public comments raised that visitors should be able to visit the park at their own pace and on their own terms. In addition, this allowance furthers the desired condition of the parks by providing a range of appropriate winter recreation opportunities. At the same time, a blend of non-commercial and commercially guided trips ensures that the wildlife mitigation benefits of guided trips discussed above are met. The non-commercial guide training program will discuss park rules, safety considerations, and appropriate actions to minimize impacts to wildlife and other park resources.

Daily Limits on Snowmobile Use

Alternatives 2, 3, and 4 each provide interim limits on the number of snowmobiles that may enter the parks each day through the various entrances. These limits are intended to mitigate impacts to air and water quality, natural soundscapes, wildlife, and visitor experience, while maintaining historical levels of visitation to the parks. Under the preferred alternative, the interim daily limits allow for at least the average number of daily snowmobile entries at all park entrances. If the snowmobile entry limits are met, NPS expects that additional visitation could occur through the use of snowcoaches. For each of these alternatives, entry limits are intended to be interim limits, which could be increased or decreased depending upon the results of adaptive management and monitoring programs. Alternatives 3 and 4 also would include a study of carrying capacity using the NPS approved VERP Framework and other appropriate methodologies.

The entry limits proposed in the preferred alternative, alternative 4, are based in part on the results of the environmental analysis contained in this SEIS, which concludes, based on information available at this time, that there will not be unacceptable impacts to park resources or values resulting from oversnow motorized use if other elements of the preferred alternative are met, such as requirements for BAT and guides. In addition, these entry limits will most effectively meet the NPS' goal of maintaining historical visitation to the parks. However, it is critical that these limits are understood to be *interim* and subject to change if adaptive management or monitoring programs indicate that unacceptable impacts to park resources or values are occurring.

Development and Use of a New Generation Snowcoach

All alternatives emphasize the development and use of new generation snowcoaches. These snowcoaches would be useable both in winter and in summer, would run on alternative fuels, and be accessible for individuals with disabilities. In addition, the vehicle would be designed to be congruent with other historical means of park transportation (such as Bombardier snowcoaches) and maintain the uniqueness of a national park visit. An initial prototype vehicle should be operating in Yellowstone in late February 2003. A second prototype vehicle would be built in 2003-2004 using knowledge gained from the first vehicle, and mass production could begin in 2004-2005. Recognizing that use of this vehicle at only one or two parks would not be enough of a market to be cost effective, the NPS is exploring opportunities of using this basic vehicle for mass transit operations at other national parks and in other areas.

Monitoring and Adaptive Management

All of the alternatives analyzed in this SEIS include monitoring and adaptive management provisions (see Table 12). These programs are essential to ensure that unacceptable impacts do not occur to park resources and values, including wildlife, natural soundscapes, air and water quality, and visitors' experience. These programs will provide park managers with data that can be used to support decisions to adjust numbers, required entry times, air and noise emissions requirements, and other factors related to oversnow motorized vehicle use in the parks. The preliminary thresholds, which could trigger management actions if violated, were derived in part from the least environmentally damaging conditions achievable under any of the alternatives. Many of these thresholds were based partly on the results of computational models, and they are preliminary in nature. Therefore, they could be adjusted depending on data resulting from monitoring and adaptive management programs. Through intensive adaptive management and monitoring programs, park managers will be able to manage winter use in the parks to prevent impairment to park resources and values.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

NPS did not evaluate the environmentally preferred alternative in the Draft SEIS. An appropriate evaluation is included here.

The purpose of the environmentally preferred alternative is to identify for the public and the decision-maker the alternative which "causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources" (46 Fed. Reg. 18026 (1981)). The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969, which is guided by the CEQ. The CEQ provides direction that, "[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and

- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources

Given the above criteria, alternative 1b is the environmentally preferred alternative. Alternative 1b is based on Final EIS alternative G, which was determined to be the environmentally preferred alternative by both the NPS and the EPA. Alternative 1b best preserves the unique historic, cultural, and natural resources associated with Yellowstone and Grand Teton National Parks. This alternative yields the lowest levels of impacts to air quality, water quality, natural soundscapes, and wildlife, because it relies on mass transit snowcoaches to provide oversnow access to the parks. In comparison with the other alternatives, Alternative 1b best “attain[s] the widest range of beneficial uses of the environment without degradation, [and] risk of health or safety” by ensuring visitors to the parks have appropriate opportunities to experience and enjoy the parks in a safe manner that causes the least amount of damage to the environment. In addition, alternative 1b, in contrast with alternative 1a, strikes a balance between population and resource use by allowing additional time for local communities and businesses to adapt to the phase out of snowmobiles. Even with the phase out of snowmobiles, economic impacts to local communities in the 5-county area have been found to be negligible to minor. Alternative 1b also fulfills the NPS’ responsibility as trustee of our national parks for the enjoyment and inspiration of future generations by preserving the parks in the best possible environmental condition, while allowing for current generations to experience and enjoy the parks.

Table 10. Summary of alternative actions Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway winter use plan.

ALTERNATIVES 1a and 1b		ALTERNATIVE 2
Emissions Requirements		
<ul style="list-style-type: none"> Snowcoach travel only managed by concessions permit and required to meet the best available environmental standards, (currently the Mattrack snowcoach). Phase in these requirements through the permitting process. 		<ul style="list-style-type: none"> Rental snowmobiles: 200 g/kW-hr (149g/hp-hr) for CO and 75 g/kW -hr (56g/hp-hr) for HC (EPA emission rule for snowmobiles) beginning in 2003-2004. Public snowmobiles: allow any 4-stroke and any 2-stroke using bio-fuels and lubes. By 2006-2007 all snowmobiles must meet 2012 EPA standards. Snowcoaches: For the first five years, allow snowcoaches irrespective of emissions. After five years, only “new concept snowcoaches” will be allowed.
Sound Requirements		
<ul style="list-style-type: none"> Snowcoaches: 75 dB phasing to 70 dB(A).[†] 		<ul style="list-style-type: none"> Rental snowmobiles: 75 dB(A).[‡] Public snowmobiles: 78 dB(A).[‡] Snowcoaches: For the first five years, 78 dB(A), after five years, 75 dB(A).[†]
Interim Limits and Phase In Period		
Alternative 1a <ul style="list-style-type: none"> 2003-2004 close Jackson Lake and Teton Park Road to motorized vehicles. 2003-2004 snowmobiles at a maximum of 50% of current average day at West and South Entrances; current use maintained at all other areas. 2004-2005 snowcoach only travel, snowmobile access maintained to inholdings and USFS areas in GTNP. 	Alternative 1b <ul style="list-style-type: none"> 2003-2004 close Jackson Lake and Teton Park Road to motorized vehicles. 2004-2005 snowmobiles at a maximum of 50% of current average day at West and South Entrances; current use maintained at all other areas. 2005-2006 snowcoach only travel, snowmobile access maintained to inholdings and USFS areas in GTNP. 	<ul style="list-style-type: none"> Interim limit for monitoring and adaptive management program. As monitoring and carrying capacity studies indicate, use numbers may be adjusted. North Entrance limited to 25 snowmobiles per day. West Entrance limited to 825 snowmobiles in year 1. West Entrance limited to 725 snowmobiles in year 2. West Entrance limited to 600 in year 3. (Note: West Entrance limits in years 2 and 3 would only be effective if a commensurate number of seats on “new concept snowcoaches” become available each year at West Yellowstone to replace the visitors lost by the decrease in snowmobiles.) East Entrance limited to 100 snowmobiles per day. South Entrance limited to 225 snowmobiles per day. CDST 75 snowmobiles per day. Grassy Lake Road no snowmobile limit. Snowcoach travel no limit.

[†]Snowcoach sound measured at 50 ft on the A-weighted scale at full throttle.

[‡]Snowmobile sound measured at 50 ft on the A-weighted scale at 40 mph.

ALTERNATIVES 1a and 1b	ALTERNATIVE 2
Access	
<ul style="list-style-type: none"> ▪ All oversnow routes open to snowcoaches. ▪ Snowmachine access eliminated on the Teton Park Road and on the frozen surface of Jackson Lake. ▪ Levels of snowcoach access would be unrestricted. ▪ In 2010, the road from Colter Bay to Flagg Ranch becomes an oversnow route. ▪ Increase both the size and number of warming huts. 	<ul style="list-style-type: none"> ▪ All oversnow routes open except snowmachine access eliminated on the Teton Park Road and fishermen only the frozen surface of Jackson Lake. ▪ Levels of access are restricted to the average peak day numbers for the West Entrance and higher than peak day average for East, South and North Entrances. ▪ Snowcoach numbers unrestricted. ▪ Increase groomed nonmotorized trails. ▪ Increase both the size and number of warming huts.
Wildlife	
<ul style="list-style-type: none"> ▪ Nonmotorized uses in wildlife winter ranges and thermal areas limited to travel on designated routes or trails. ▪ Construct wildlife-proof garbage facilities. ▪ Manage adaptively-continue scientific studies and monitoring regarding winter visitor use and park resources. Close selected areas of the parks if scientific studies indicate that human presence or activities have a detrimental effect that could otherwise not be mitigated. 	<ul style="list-style-type: none"> ▪ Nonmotorized uses in wildlife winter ranges and thermal areas limited to travel on designated routes or trails. ▪ Construct wildlife-proof garbage facilities. ▪ Employ additional law enforcement. ▪ Manage adaptively.
Winter Season	
<ul style="list-style-type: none"> ▪ Late November to mid-March. 	<ul style="list-style-type: none"> ▪ Mid-November to mid-December access only by rubber track snowcoaches, snowshoes or skis. ▪ Mid-December to mid-March snowmobile and snowcoach travel.
Interpretation and Orientation	
<ul style="list-style-type: none"> ▪ Information program on snow and trail conditions, points of interest and available recreation opportunities. ▪ Increase interpretive opportunities on the unique aspects of the winter environment. Provide interpretive programs at destination areas and at warming huts. 	<ul style="list-style-type: none"> ▪ Information program on snow and trail conditions, points of interest and available recreation opportunities. ▪ Increase interpretive opportunities on the unique aspects of the winter environment. Provide interpretive programs at destination areas and at warming huts. ▪ Develop educational video on trail etiquette, snowmobile safety, and proper behavior around wildlife.

ALTERNATIVE 3	ALTERNATIVE 4
Emissions Requirements	
<ul style="list-style-type: none"> Cleaner and quieter technologies managed by NPS permit and managed adaptively. Interim emission requirements are based on BAT and evaluated annually as emissions are reduced numbers could be increased. Snowmobile and snowcoach BAT is capable of reducing HC by 90% and CO emissions by 70% from EPA baseline snowmobile assumptions. Historic snowcoaches initially exempted. 	<ul style="list-style-type: none"> Cleaner and quieter technologies managed by NPS permit and managed adaptively. Interim emission requirements are based on BAT and evaluated annually as emissions are reduced numbers could be increased. Snowmobile and snowcoach BAT is capable of reducing HC by 90% and CO emissions by 70% from EPA baseline snowmobile assumptions. Historic snowcoaches initially exempted.
Sound Requirements	
<ul style="list-style-type: none"> Interim sound emission requirements are based on BAT and evaluated annually (as sound emissions are reduced numbers could be increased). Snowmobiles: Any snowmobile 73 dB(A) or less.[†] Snowcoaches: Initially, 75 dB(A) by 2008.[‡] Historic snowcoaches exempted. 	<ul style="list-style-type: none"> Interim sound emission requirements are based on BAT and evaluated annually (as sound emissions are reduced numbers could be increased). Snowmobiles: Any snowmobile 73 dB(A) or less.[†] Snowcoaches: Initially, 75 dB(A) by 2008.[‡] Historic snowcoaches exempted.
Interim Limits and Phase In Period	
<ul style="list-style-type: none"> Interim limits for monitoring and adaptive management program implemented in 2003-2004. As monitoring and carrying capacity studies indicate use numbers may be adjusted. North Entrance limited to 100 per day. West Entrance limited to 330 per day. East Entrance limited to 100 per day. South Entrance limited to 400 per day. CDST limited to 100 per day. Grassy Lake limited to 100 per day. Snowcoach travel no limit. Require BAT for all snowmobiles beginning in 2003-2004. Implement guided snowmobile requirements in 2003-2004. 	<ul style="list-style-type: none"> Interim limit for monitoring and adaptive management program during the first two years. As monitoring and carrying capacity studies indicate, use numbers may be adjusted. North Entrance limited to 50 snowmobiles per day. West Entrance limited to 550 snowmobiles per day. East Entrance limited to 100 snowmobiles per day. South Entrance limited to 250 snowmobiles per day. CDST limited to 75 snowmobiles per day. Grassy Lake Road limited to 75 snowmobiles per day. Snowcoach travel no limit. Require BAT for commercially guided snowmobiles in 2003-2004; all other snowmobiles must be BAT in 2004-2005. Implement 80:20 commercial:non-commercial guided requirements in 2003-2004.

[†]Snowmobile sound measured at full acceleration using SAE J192 test procedures.

[‡]Snowcoach sound measured at 50 ft on the A-weighted scale at 25 mph.

ALTERNATIVE 3	ALTERNATIVE 4
Access	
<ul style="list-style-type: none"> ▪ All major oversnow routes open except snowmachine access eliminated on the Teton Park Road and on the frozen surface of Jackson Lake. ▪ In 2009, the road from Colter Bay to Flagg Ranch becomes an oversnow route. ▪ Increase groomed nonmotorized trails. ▪ Increase both the size and number of warming huts. 	<ul style="list-style-type: none"> ▪ All major oversnow routes open except snowmachine access eliminated on the Teton Park Road and on the frozen surface of Jackson Lake. ▪ In 2009, the road from Colter Bay to Flagg Ranch becomes an oversnow route. ▪ Increase groomed nonmotorized trails. ▪ Increase both the size and number of warming huts.
Wildlife	
<ul style="list-style-type: none"> ▪ Nonmotorized uses in wildlife winter ranges and thermal areas limited to travel on designated routes or trails. ▪ Construct wildlife-proof garbage facilities. ▪ Manage adaptively; action items include signing, employing additional enforcement rangers, limiting access. 	<ul style="list-style-type: none"> ▪ Nonmotorized uses in wildlife winter ranges and thermal areas limited to travel on designated routes or trails. ▪ Construct wildlife-proof garbage facilities. ▪ Employ additional law enforcement. ▪ Manage adaptively; action items include signing, employing additional enforcement rangers, limiting access.
Winter Season	
<ul style="list-style-type: none"> ▪ Late November to mid-March. ▪ Last week of February (after President's Day) to mid-March access by snowcoach, skis or snowshoes only. 	<ul style="list-style-type: none"> ▪ Late November to mid-March.
Interpretation and Orientation	
<ul style="list-style-type: none"> ▪ Information program on snow and trail conditions, points of interest and available recreation opportunities. ▪ Increase interpretive opportunities on the unique aspects of the winter environment. Provide interpretive programs at destination areas and at warming huts. ▪ Develop educational video on trail etiquette, snowmobile safety, and proper behavior around wildlife. 	<ul style="list-style-type: none"> ▪ Information program on snow and trail conditions, points of interest and available recreation opportunities. ▪ Increase interpretive opportunities on the unique aspects of the winter environment. Provide interpretive programs at destination areas and at warming huts. ▪ Develop educational video on trail etiquette, snowmobile safety, and proper behavior around wildlife.

Table 11. Summary of effects between the existing condition and SEIS alternatives.

	FEIS Alternative A (Existing Condition)	SEIS Alternatives 1a and 1b	SEIS Alternative 2	SEIS Alternative 3	Alternative 4 – The Preferred Alternative
Socioeconomics	<p><u>Economic Indices:</u> Total economic output in MT, WY, and ID: \$125 billion and total employment of 1.5 million jobs.</p> <p>Total economic output in the 5-county GYA area: \$6.4 billion and 97,000 jobs.</p> <p>Gateway communities of Gardiner MT, West Yellowstone MT, Cody WY, Jackson WY: Status quo short term.</p> <p><u>Social Indices:</u> 67% of survey respondents agree that there should be motorized winter access to YNP.</p> <p>61% of respondents also are concerned about the disturbance to wildlife in the winter.</p> <p>Current winter visitors are those who are attracted by available opportunities, which at present are dominated by snowmobiling. Visitors who expect quiet nonmotorized experiences have been displaced from the parks, or their expectations are not met.</p> <p>The existing winter access policy is not preferred by the public in the region or the nation.</p>	<p><u>Economic Impacts:</u> 3 state region: maximum loss of 18.4 million (< -1%) and 471 jobs (< -1%)</p> <p>5-county GYA area: maximum loss of \$15.9 million (< -1%) and 499 jobs (< -1%).</p> <p>W. Yellowstone: economy would decline 6.5 - 8.5% short term</p> <p>No measurable economic impact on other gateway communities.</p> <p><u>Social Impacts:</u> Motorized oversnow access is provided in all areas. Mode of access is changed to snowcoach.</p> <p>A majority of local residents agree that snowmobiles adversely impact the parks and should be limited.</p> <p>Loss of opportunities to snowmobilers may shift participation rates to other winter activities, offsetting economic losses.</p> <p>A majority of regional and national respondents favor snowcoach access over snowmobile. This alternative would likely be favored in a regional or national forum.</p>	<p><u>Economic Impacts:</u> 3 state region: maximum loss of \$5.4 million (< -1%) and 127 jobs (< -1%).</p> <p>5-county GYA area: maximum loss of \$4.8 million (< -1%) and 106 jobs (< -1%)</p> <p>West Yellowstone: economy would decline by 2.3-2.5% short term</p> <p>No measurable economic impact on other gateway communities.</p> <p><u>Social Impacts:</u> Motorized oversnow access is provided in all areas. Mode of access is a mix of snowmobile and snowcoach.</p> <p>A majority of local residents agree that snowmobiles adversely impact the parks and should be limited.</p> <p>A minor decrease in opportunities to snowmobile from W. Yellowstone may shift participation to other gateways. Replacement behaviors not likely.</p> <p>A majority of regional and national respondents favor snowcoach access over snowmobile. This alternative would likely not be favored in a regional or national forum.</p>	<p><u>Economic Impacts:</u> 3 state region: maximum loss of \$14.5 million (< -1%) and 342 jobs (< -1%).</p> <p>5-county GYA area: maximum loss of \$12.9 million (<-1%) and 285 jobs (<-1%)</p> <p>West Yellowstone: winter economy would decline 5.6-5.9% short term</p> <p>No measurable economic impact on other gateway communities.</p> <p><u>Social Impacts:</u> Motorized oversnow access is provided in all areas. Mode of access is a mix of snowmobile and snowcoach.</p> <p>A majority of local residents agree that snowmobiles adversely impact the parks and should be limited.</p> <p>A minor decrease in opportunities to snowmobile from W. Yellowstone may shift participation to other gateways. Replacement behaviors not likely</p> <p>A majority of regional and national respondents favor snowcoach access over snowmobile. This alternative would likely not be favored in a regional or national forum.</p>	<p><u>Economic Impacts:</u> 3 state region: maximum loss of \$13.8 million (< -1%) and 324 jobs (< -1%).</p> <p>5-county GYA area: maximum loss of \$12.2 million (<-1%) and 271 jobs (<-1%)</p> <p>West Yellowstone: winter economy would decline 4.3-5.2% short term</p> <p>No measurable economic impact on other gateway communities.</p> <p><u>Social Impacts:</u> Motorized oversnow access is provided in all areas. Mode of access is a mix of snowmobile and snowcoach.</p> <p>A majority of local residents agree that snowmobiles adversely impact the parks and should be limited.</p> <p>A minor decrease in opportunities to snowmobile from W. Yellowstone may shift participation to other gateways. Replacement behaviors not likely</p> <p>A majority of regional and national respondents favor snowcoach access over snowmobile. This alternative would likely not be favored in a regional or national forum.</p>
Air Quality (NAAQS Parameters)	<p>For air quality, existing conditions were re-modeled in the SEIS:</p> <p><u>Parkwide Total Emissions (tons/yr):</u> CO=1,925, PM₁₀=10, HC=674, NO_x =16</p> <p><u>West Entrance:</u> Maximum 1-hour CO is 12.20 ppm Maximum 24-hour PM₁₀ is 30.20 µgrams/m³</p> <p><u>West Entrance to Madison:</u> Maximum 1-hour CO is 11.45 ppm Maximum 24-hour PM₁₀ is 23.40 µgrams/m³</p> <p><u>Flagg Ranch:</u> Maximum 1-hour CO is 20.29 ppm Maximum 24-hour PM₁₀ is 12.01 µgrams/m³</p>	<p><u>Parkwide Total Emissions (tons/yr):</u> After full implementation, CO=313, PM₁₀=1.1, HC=44, NO_x =11</p> <p><u>West Entrance (after full implementation):</u> Maximum 1-hour CO is 4.20 ppm Maximum 24-hour PM₁₀ is 23.40 µgrams/m³</p> <p><u>West Entrance to Madison (after full implementation):</u> Maximum 1-hour CO is 1.15 ppm Maximum 24-hour PM₁₀ is 5.80 µgrams/m³</p> <p><u>Flagg Ranch (after full implementation):</u> Maximum 1-hour CO is 5.96 ppm Maximum 24-hour PM₁₀ is 5.06µgrams/m³</p>	<p><u>Parkwide Total Emissions (tons/yr):</u> After full implementation, CO=1,297, PM₁₀=10.4, HC=444, NO_x=13</p> <p><u>West Entrance (after full implementation):</u> Maximum 1-hour CO is 8.7 ppm. Maximum 24-hour PM₁₀ is 45.40 µgrams/m³</p> <p><u>West Entrance to Madison (after full implementation):</u> Maximum 1-hour CO is 6.15 ppm Maximum 24-hour PM₁₀ is 27.00 µgrams/m³</p> <p><u>Flagg Ranch (after full implementation):</u> Maximum 1-hour CO is 14.62 ppm Maximum 24-hour PM₁₀ is 13.49 µgrams/m³</p>	<p><u>Parkwide Total Emissions (tons/yr):</u> After full implementation, CO=669, PM₁₀=1.2, HC=69, NO_x=66</p> <p><u>West Entrance (after full implementation):</u> Maximum 1-hour CO is 7.60 ppm Maximum 24-hour PM₁₀ is 25.4 µgrams/m³</p> <p><u>West Entrance to Madison (after full implementation):</u> Maximum 1-hour CO is 1.85 ppm Maximum 24-hour PM₁₀ is 5.80 µgrams/m³</p> <p><u>Flagg Ranch (after full implementation):</u> Maximum 1-hour CO is 15.75 ppm Maximum 24-hour PM₁₀ is 8.17 µgrams/m³</p>	<p><u>Parkwide Total Emissions (tons per year):</u> After full implementation, CO=621, PM₁₀=1.1, HC=67, NO_x =62</p> <p><u>West Entrance (after full implementation):</u> Maximum 1-hour CO is 9.00 ppm Maximum 24-hour PM₁₀ is 27.40 µgrams/m³</p> <p><u>West Entrance to Madison (after full implementation):</u> Maximum 1-hour CO is 2.55 ppm Maximum 24-hour PM₁₀ is 5.80 µgrams/m³</p> <p><u>Flagg Ranch (after full implementation):</u> Maximum 1-hour CO is 10.72 ppm. Maximum 24-hour PM₁₀ Ranch is 7.11 µgrams/m³</p>

	FEIS Alternative A (Existing Condition)	SEIS Alternatives 1a and 1b	SEIS Alternative 2	SEIS Alternative 3	Alternative 4 – The Preferred Alternative
Visibility	<p><u>Staging and Destination Areas:</u> Emissions cause local, perceptible visibility impacts near YNP West Entrance, in and around the Old Faithful area, and at Flagg Ranch.</p> <p><u>Oversnow Routes:</u> There is perceptible visibility impacts along heavily used roadway segments under certain viewing conditions.</p>	<p><u>Staging and Destination Areas:</u> Emissions would not cause any perceptible visibility impacts at staging areas.</p> <p><u>Oversnow Routes:</u> Emissions would not cause any perceptible visibility impacts along roadways.</p>	<p><u>Staging and Destination Areas:</u> Emissions cause local, perceptible visibility impacts near YNP West Entrance, in and around the Old Faithful area, and at Flagg Ranch.</p> <p><u>Oversnow Routes:</u> Emissions cause perceptible visibility impacts along the West Entrance to Madison Roadway.</p>	<p><u>Staging and Destination Areas:</u> Emissions cause local, perceptible visibility impacts in and around the Old Faithful area and at Flagg Ranch.</p> <p><u>Oversnow Routes:</u> Emissions would not cause perceptible visibility impacts along roadways.</p>	<p><u>Staging and Destination Areas:</u> Emissions cause local, perceptible visibility impacts in and around the Old Faithful area.</p> <p><u>Oversnow Routes:</u> Emissions would not cause perceptible visibility impacts along roadways.</p>
Health and Safety	<p><u>Safety:</u> Adverse, minor effects to visitor and employee safety from the West Entrance to Old Faithful and on the CDST. Adverse, negligible effects on less heavily traveled routes. Adverse, minor to moderate effects on visitors who use the East Entrance.</p> <p><u>Health:</u> Where high levels of NAAQS pollutants occur, employees and visitors who are susceptible to respiratory problems would likely be affected. High levels occur at staging areas where large numbers of oversnow vehicles are present in a relatively small area.</p>	<p><u>Safety:</u> Beneficial, major and long-term effects due to the elimination of snowmobiles.</p> <p><u>Health:</u> High levels of NAAQS pollutants are not likely to occur. Effects to public health due to high level of NAAQS pollutants would be virtually nonexistent.</p>	<p><u>Safety:</u> Same as current condition but effects may be mitigated by the prohibition on travel from 8:00 P.M. to 7:30 A.M., and reduced speed limits.</p> <p><u>Health:</u> Where high levels of NAAQS pollutants occur, employees and visitors who are susceptible to respiratory problems would likely be affected. High levels are likely to occur at staging areas (including West Entrance, Old Faithful, and Flagg Ranch) where large numbers of oversnow vehicles are present in a relatively small area. ATSDR MRLs could be approached or exceeded in staging areas.</p>	<p><u>Safety:</u> Negligible to minor adverse effects to visitor and employee safety from the West Entrance to Old Faithful and on the CDST. Adverse negligible effects on less heavily traveled routes. Effects may be mitigated by fewer numbers (relative to alternative 2), the prohibition on travel from 8:00 P.M. to 7:30 A.M. and mandatory use of guides.</p> <p><u>Health:</u> Where high levels of NAAQS pollutants occur, employees and visitors who are susceptible to respiratory problems would likely be affected, though to a lesser degree than in Alternative A or Alternative 2. ATSDR MRLs could be approached in staging areas.</p>	<p><u>Safety:</u> Same as alternative 3 but effects may be mitigated by the prohibition on travel from 8:00 P.M. to 7:00 A.M. and mandatory use of guides.</p> <p><u>Health:</u> Where high levels of NAAQS pollutants occur, employees and visitors who are susceptible to respiratory problems would likely be affected, though to a lesser degree than in Alternative A or Alternative 2. ATSDR MRLs could be approached in staging areas and occasionally exceeded.</p>
Wildlife-- Elk and Bison	<p>Effects of groomed surfaces on animal movements and population dynamics – unknown to what extent any beneficial effects outweigh negative effects.</p> <p>Displacement effects — adverse, moderate, and short-term.</p> <p>Risk of collisions with snowmobiles — negligible, adverse, and short-term.</p>	<p>Fewer groomed surfaces in GTNP and JDR, therefore related effects less than in FEIS alternative A. Same as A for YNP.</p> <p>Displacement effects less than FEIS alternative A due to mass transit; fewer vehicles using groomed surfaces.</p> <p>Risk of collision with snowmobiles less than FEIS alternative A due to prohibition on snowmobiles.</p>	<p>Groomed surfaces — same as FEIS alternative A.</p> <p>Displacement effects — same as FEIS alternative A.</p> <p>Risk of collisions with snowmobiles – same as FEIS alternative A; effects may be mitigated by slower speed limits and the prohibition of nighttime travel from 8 P.M. to 7:30 A.M.</p>	<p>Groomed surfaces — same as FEIS alternative A.</p> <p>Displacement effects — same as FEIS alternative A; effects are mitigated by requiring snowmobilers be accompanied by NPS permitted guides.</p> <p>Risk of collisions with snowmobiles – same as FEIS alternative A; effects may be mitigated by the prohibition of nighttime travel from 8 P.M. to 7:30 A.M.</p>	<p>Groomed surfaces — same as FEIS alternative A.</p> <p>Displacement effects — same as FEIS alternative A; effects are mitigated by requiring snowmobilers be accompanied by NPS permitted guides.</p> <p>Risk of collisions with snowmobiles – same as FEIS alternative A; effects may be mitigated by slower speed limits and the prohibition of nighttime travel from 8 P.M. to 7:00 A.M.</p>
Natural Soundscapes	<p>Modeling assumptions have changed, therefore it would be inappropriate to compare the existing condition, as modeled in FEIS alternative A, with the SEIS alternatives.</p>	<p><u>Audibility, all vehicles (quiet background conditions and poor atmospheric and snow conditions):</u> Audible at all on 114,432 ac. Audible more than 10% of the time on 31,173 ac. Audible more than 50% of the time on 12,327 ac.</p> <p><u>Audibility, oversnow vehicles only (quiet background conditions and poor atmospheric and snow conditions):</u> Audible at all on 89,296 ac. More than 10% of the time on 13,622 ac. More than 50% of the time on 0 ac.</p>	<p><u>Audibility, all vehicles (quiet background conditions and poor atmospheric and snow conditions):</u> Audible at all on 128,495 ac. Audible more than 10% of the time on 66,522 ac. Audible more than 50% of the time on 19,987 ac.</p> <p><u>Audibility, oversnow vehicles only (quiet background conditions and poor atmospheric and snow conditions):</u> Audible at all on 103,347 ac. More than 10% of the time on 49,052 ac. More than 50% of the time on 7,714 ac.</p>	<p><u>Audibility, all vehicles (quiet background conditions and poor atmospheric and snow conditions):</u> Audible at all on 155,488 ac. Audible more than 10% of the time on 98,680 ac. Audible more than 50% of the time on 29,246 ac.</p> <p><u>Audibility, oversnow vehicles only (quiet background conditions and poor atmospheric and snow conditions):</u> Audible at all on 130,293 ac. More than 10% of the time on 80,884 ac. More than 50% of the time on 16,845 ac.</p>	<p><u>Audibility, all vehicles (quiet background conditions and poor atmospheric and snow conditions):</u> Audible at all on 153,864 ac. Audible more than 10% of the time on 94,390 ac. Audible more than 50% of the time on 26,676 ac.</p> <p><u>Audibility, oversnow vehicles only (quiet background conditions and poor atmospheric and snow conditions):</u> Audible at all on 128,670 ac. More than 10% of the time on 76,658 ac. More than 50% of the time on 14,297 ac.</p>

	FEIS Alternative A (Existing Condition)	SEIS Alternatives 1a and 1b	SEIS Alternative 2	SEIS Alternative 3	Alternative 4 – The Preferred Alternative
Visitor Access	Existing access and use defines the baseline condition for park visitation. Access is defined by travel corridors by which visitors arrive in the Greater Yellowstone Area, the gateways they use to enter the parks, the mode of transport used to enter and travel about the parks, and the levels of visitation that occur, on the average, by gateway.	These alternatives would provide access by oversnow motorized means through existing gateways at historical visitation levels. The mode of access would change from a mix of snowcoach and snowmobile to snowcoach only.	This alternative would provide access by oversnow motorized means through existing gateways. The mode of access would remain a mix of snowcoach and snowmobile. Historic use levels by snowmobile access at all gateways would be preserved. Capped use at West Yellowstone would allow current average use on a daily basis - current peak use would not be allowed. Other gateways would allow increased use by snowmobile.	This alternative would provide access by oversnow motorized means through existing gateways. The mode of access would remain a mix of snowcoach and snowmobile. Historic use levels by snowmobile access at gateways would be preserved except for that at West Yellowstone. Increased snowcoach access would be available at West Yellowstone to provide for historic visitation levels.	This alternative would provide access by oversnow motorized means through existing gateways. The mode of access would remain a mix of snowcoach and snowmobile. Historic use levels by snowmobile access at all gateways would be preserved. Capped use at West Yellowstone would allow current average use on a daily basis - current peak use would not be allowed. Other gateways would allow increased use by snowmobile.
Visitor Experience	<p><u>Effects on All Three Park Units:</u></p> <ul style="list-style-type: none"> Little or no operational change would occur. Visitation would be influenced by the method of transportation available to visitors. For visitors who prefer to visit the parks via snowmobile, the visitor experience would continue to be highly satisfactory. Encounters with park wildlife and scenery would continue to be primary attractions, consequently the overall satisfaction of current winter visitors would remain high. Current levels of snowmobile emissions and sound levels would continue to detract from critical characteristics of the desired winter experience for many visitors resulting in direct short-term major adverse impacts on their visitor experience. The perceived unsafe behavior of others and the occurrence of visitor conflicts would continue to have direct short-term minor to moderate adverse effects on the experience of some users. Current motorized use would continue to deter some user groups from visiting or returning to the parks. 	<p><u>Effects on Yellowstone:</u></p> <ul style="list-style-type: none"> Adaptive management provisions for long-term protection of park resources may result in area closures, resulting in local direct adverse impacts on visitor experience. The reduction in emissions and sound under this alternative would result in direct major beneficial improvements to the experiences of park visitors. Opportunities to appreciate clean air would be greatly improved. Where oversnow motorized use occurs, via snowcoach, quiet and clean air would be facilitated by improved motorized technology. Less opportunities to view wildlife and scenery relative to the existing condition. Major beneficial changes relating to safety by eliminating the possibility of snowmobile related motor vehicle accidents. Elimination of snowmobiles would result in major adverse impacts to the experiences of visitors in this user group. 	<p><u>Effects on All Three Park Units:</u></p> <ul style="list-style-type: none"> Adaptive management provisions for long-term protection of park resources may result in area closures, resulting in local direct adverse impacts on visitor experience. Opportunities to appreciate clean air would be increased from FEIS alternative A providing a minor to moderate beneficial effect. Where oversnow motorized use occurs and clean air would be facilitated by improved motorized technology. Due to the daily snowmobile entry limits, there would be an increase from current condition (FEIS alternative A) relative to opportunities for quiet and solitude. <p><u>Effects on Yellowstone:</u></p> <ul style="list-style-type: none"> Snowmobile users would experience little change in opportunities to view wildlife and scenery from FEIS alternative A. However, the quality of those experiences would be moderately and adversely affected for some visitors, particularly on peak use days. There would be few changes in the effects relating to safety from alternative A. 	<p><u>Effects on All Three Park Units:</u></p> <ul style="list-style-type: none"> Adaptive management provisions: same effects as shown in other alternatives. Snowmobile users would experience little change in opportunities to view wildlife and scenery from alternative A as described in the FEIS. There would be moderate and beneficial improvements in Yellowstone to the quality of those experiences for some visitors. Opportunities to appreciate clean air, quiet and solitude would be increased from FEIS alternative A and decreased when compared to SEIS alternatives 1 and 2. Where oversnow motorized use occurs quiet and clean air would be facilitated by improved motorized technology and fewer vehicles. <p><u>Effects on Yellowstone:</u></p> <ul style="list-style-type: none"> Moderate improvements to safety because of the emphasis on guided tours and snowcoaches under this alternative. 	<p><u>Effects on All Three Park Units:</u></p> <ul style="list-style-type: none"> Adaptive management provisions: same effects as shown in other alternatives. Snowmobile users would experience little change in opportunities to view wildlife and scenery from alternative A as described in the FEIS. There would be moderate and beneficial improvements in Yellowstone to the quality of those experiences for some visitors. Opportunities to appreciate clean air, quiet and solitude would be increased from FEIS alternative A and decreased when compared to SEIS alternatives 1 and 2. Where oversnow motorized use occurs quiet and clean air would be facilitated by improved motorized technology and fewer vehicles. <p><u>Effects on Yellowstone:</u></p> <ul style="list-style-type: none"> Moderate improvements to safety because of the emphasis on guided tours and snowcoaches under this alternative.

	FEIS Alternative A (Existing Condition)	SEIS Alternatives 1a and 1b	SEIS Alternative 2	SEIS Alternative 3	Alternative 4 – The Preferred Alternative
Visitor Experience (continued)		<p><u>Effects on Grand Teton/Parkway:</u></p> <ul style="list-style-type: none">▪ Negligible to minor adverse impacts on visitor experience relating to wildlife and scenery viewing due to the elimination of motorized travel on the frozen surface of Jackson Lake.▪ Opportunities to view wildlife would be improved for nonmotorized users of these areas.▪ Major beneficial changes relating to safety by eliminating snowmobile-related motor vehicle accidents, and wheeled-vehicle accidents from Colter Bay to Flagg Ranch.▪ Major adverse impact for those who wish to ride snowmobiles.	<p><u>Effects on Grand Teton/Parkway:</u></p> <ul style="list-style-type: none">▪ Negligible to minor adverse impacts on visitor experience relating to wildlife and scenery viewing would occur because of the elimination of motorized travel on the frozen surface of Jackson Lake. Anglers however would not be affected.▪ Moderate adverse effects to safety by continuing the possibility of snowmobile-related motor vehicle accidents and wheeled-vehicle accidents on the road segment from Moran Junction to Flagg Ranch.	<p><u>Effects on Yellowstone:</u></p> <ul style="list-style-type: none">▪ The use limit of 330 snowmobiles entering from the West would result in moderate to major adverse effects on approximately 220 snowmobile enthusiasts (per day) who find entering from the West Entrance essential to their park experience.▪ The use limit of 330 would result in moderate to major improvements to the groomed surface on that road segment.▪ Moderate improvements to safety because of the emphasis on guided tours and snowcoaches under this alternative. <p><u>Effects on Grand Teton/Parkway:</u></p> <ul style="list-style-type: none">▪ Negligible to minor adverse impacts on visitor experience relating to wildlife and scenery viewing would occur because of the elimination of motorized travel on the frozen surface of Jackson Lake. <p>Moderate adverse effects relating to safety by continuing the possibility of snowmobile-related motor vehicle accidents, and wheeled-vehicle accidents on the road segment from Moran Junction to Flagg Ranch.</p>	<p><u>Effects on Grand Teton/Parkway:</u></p> <ul style="list-style-type: none">▪ Negligible to minor adverse impacts on visitor experience relating to wildlife and scenery viewing would occur because of the elimination of motorized travel on the frozen surface of Jackson Lake.▪ Moderate adverse effects relating to safety by continuing the possibility of snowmobile-related motor vehicle accidents, and wheeled-vehicle accidents on the road segment from Moran Junction to Flagg Ranch.

Table 12. Monitoring and adaptive management indicators, thresholds, and methods.

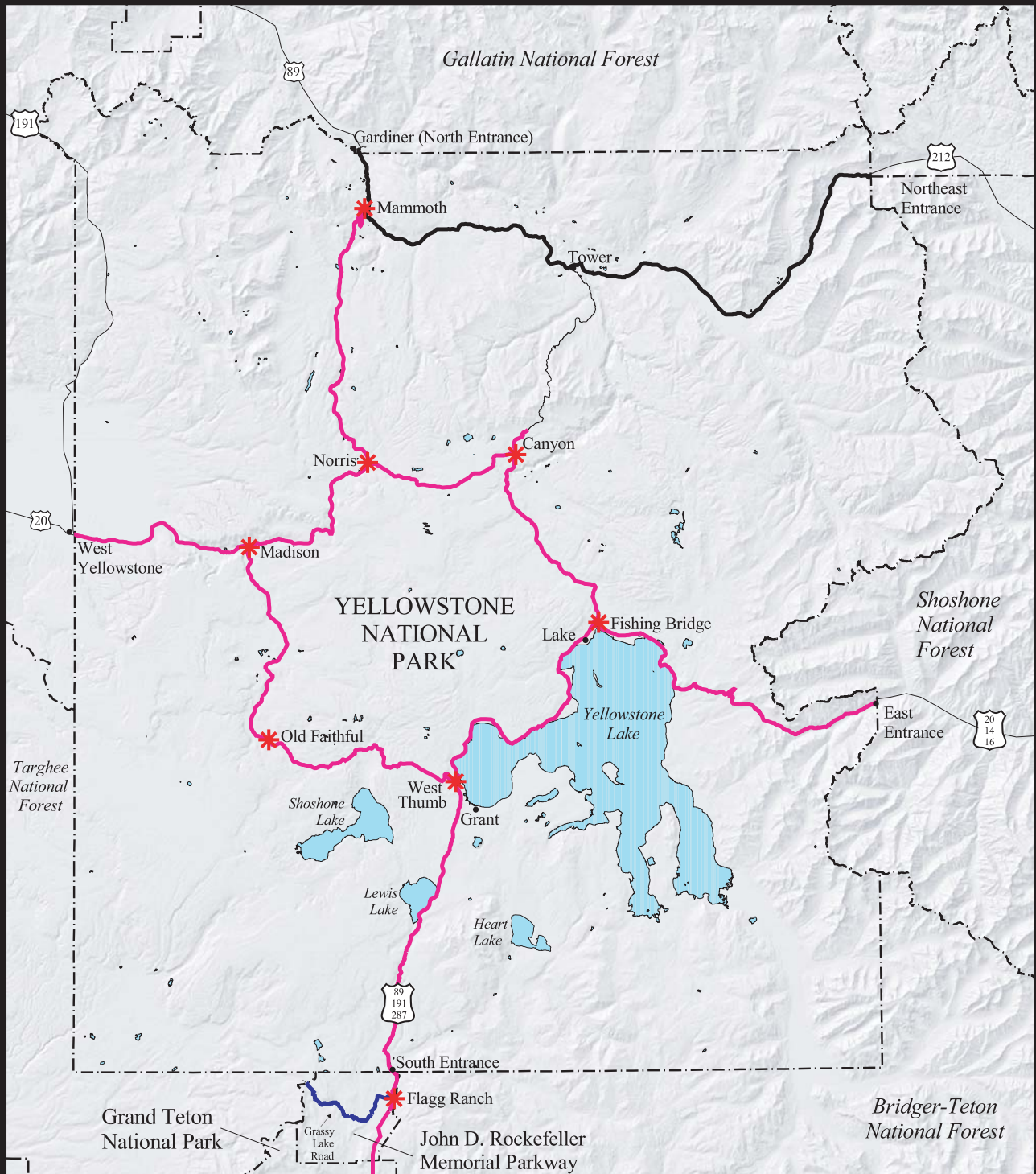
Resource or Value	Indicator	Location/ Management Zone	Preliminary Threshold	Preliminary Method	Initial Monitoring Intensity*	Possible Management Options if Threshold is Violated
Air Quality	Odor	Zones 1-3	Area free of any noticeable odor of human-caused pollutants resulting from motorized recreation at least 90% of the daily hours of park operation	Park visitor survey Scentometer	High	<ul style="list-style-type: none">▪ Require new technologies▪ Adjust number of daily vehicle entries permitted▪ Establish timed-entry requirements
		Zones 4-5	Area free of any noticeable odor of human-caused pollutants resulting from motorized recreation at least 95% of the daily hours of park operation		Low	
		Zones 6-9	Area free of any noticeable odor of human-caused pollution		Low	
	Visibility	Zones 1-4	No perceptible localized visibility impacts	Photo survey and time lapse video and nephelometer	High	
		Zones 5-9	No perceptible localized visibility impacts		Low	
	Park employees and visitors exposure to CO, particulate matter, and volatile organic compounds	Zone 1	1-hr maximum CO (w/bkgd): 8 ppm 8-hr maximum CO (w/bkgd): 3 ppm 24-hr maximum PM ₁₀ (w/bkgd): 23 µg/m ³ No observed employee health problems due to air quality ATSDR (Agency for Toxic Substances and Disease Registry) Minimal Risk Levels	Fixed site monitoring or personal sampling for PM and CO Personal samples, cartridges, or canisters for VOCs (air toxics)	High	
		Zone 2	1-hr maximum CO (w/bkgd): 1 ppm 8-hr maximum CO (w/bkgd): 1 ppm 24-hr maximum PM ₁₀ : 5 µg/m ³	Fixed site monitoring or personal sampling for PM and CO Personal samples, cartridges, or canisters for VOCs (air toxics)	Low	
		Zone 3	1-hr maximum CO (w/bkgd): 1 ppm 8-hr maximum CO (w/bkgd): 1 ppm 24-hr maximum PM ₁₀ (w/bkgd): 6 µg/m ³ No observed employee health problems due to air quality ATSDR (Agency for Toxic Substances and Disease Registry) Minimal Risk Levels	Fixed site monitoring or personal sampling for PM and CO Personal samples, cartridges, or canisters for VOCs (air toxics)	Moderate	
		Zones 4-5	1-hr maximum CO (w/bkgd): 1 ppm 8-hr maximum CO (w/bkgd): 1 ppm 24-hr maximum PM ₁₀ : 5 µg/m ³	Fixed site monitoring or personal sampling for PM and CO Personal samples, cartridges, or canisters for VOCs (air toxics)	Low	

Resource or Value	Indicator	Location/ Management Zone	Preliminary Threshold	Preliminary Method	Initial Monitoring Intensity*	Possible Management Options if Threshold is Violated
Natural Soundscapes	Distance and time human-caused sound is audible	Zones 1-5	During daytime hours of park operation (8 A.M. – 4 P.M.) and measured 100 feet from staging areas and roadways: <ul style="list-style-type: none">▪ Audibility: Not to exceed (NTE) 50%▪ dB of human caused noise: NTE 70 dB(A)▪ Leq (average sound level): NTE 45 dB(A) <p>Note: Audibility is the percent of time oversnow vehicles are audible to a person with normal hearing. A NTE 50% threshold means that oversnow vehicles will not be audible more than 50% of the time during hours of park operation.</p>	Audibility logging, digital recordings, and sound pressure level measurement	High	<ul style="list-style-type: none">▪ Require new technologies▪ Adjust number of daily vehicle entries permitted▪ Establish timed-entry requirements
		Zone 6	During daytime hours of park operation (8 A.M. – 4 P.M.) and measured 100 feet from staging areas and roadways: <ul style="list-style-type: none">▪ Audibility: Not to exceed (NTE) 25%▪ dB of human caused noise: NTE 70 dB(A)▪ Leq (average sound level): NTE 45 dB(A)		High	
		Zones 7-8	During daytime hours of park operation (8 A.M. – 4 P.M.) and measured 100 feet from staging areas and roadways: <ul style="list-style-type: none">▪ Audibility: Not to exceed (NTE) 20%▪ dB of human caused noise: NTE 6 dB(A) below natural ambient sound levels▪ Leq (average sound level): NTE natural ambient sound levels <p>Note: Vehicle noise, even at 6 dB(A) less than natural ambient, is usually audible due to the lower frequencies of human-caused noise. Additionally, since natural and human-caused sounds tend to be in different frequencies, both can be audible at the same time, even at very low levels.</p>		Moderate	
Safety	Motor vehicle accidents	Zones 1-5	Continual improvement of three-year sliding average	Incident descriptions and GIS mapping	High	<ul style="list-style-type: none">▪ Alter or implement commercial and non-commercial guiding requirements and/or ratio▪ Increase signage and reduce speed limits in areas of recurring incidents▪ Increase law enforcement and educational information▪ Adjust number of daily vehicle entries permitted

Resource or Value	Indicator	Location/ Management Zone	Preliminary Threshold	Preliminary Method	Initial Monitoring Intensity*	Possible Management Options if Threshold is Violated
Water/Snowpack	Water quality: VOCs, pH, hydrogen, ammonium, calcium, sulfate, nitrate, and NOx	Zones 1-3	Monitoring will occur until BAT requirements are full implemented and a longer-term threshold will be set then. In the interim, the following thresholds will be used: [†] <ul style="list-style-type: none">▪ Benzene: EPA maximum limit for drinking water 0.005 mg/L. OSHA permissible exposure in workplace (8 hour day, 40 hour weeks) 1 ppm▪ Toluene: EPA maximum limit for drinking water 1 mg/L. OSHA permissible exposure in workplace 200 ppm▪ Ethylbenzene: EPA maximum limit for drinking water .7 mg/L. OSHA permissible exposure in workplace 100 ppm▪ Xylene: EPA maximum limit for drinking water 10 ppm. OSHA permissible exposure in workplace 100 ppm	Snowpack sampling, snowmelt runoff, stream runoff, snowmelt/rain event	Moderate	<ul style="list-style-type: none">▪ Require new technologies▪ Determination and application of best management practices▪ Adjust number of daily vehicle entries permitted
		Zone 8	<ul style="list-style-type: none">▪ Benzene: EPA maximum limit for drinking water 0.005 mg/L. OSHA permissible exposure in workplace (8 hour day, 40 hour weeks) 1 ppm▪ Toluene: EPA maximum limit for drinking water 1 mg/L. OSHA permissible exposure in workplace 200 ppm▪ Ethylbenzene: EPA maximum limit for drinking water .7 mg/L. OSHA permissible exposure in workplace 100 ppm▪ Xylene: EPA maximum limit for drinking water 10 ppm. OSHA permissible exposure in workplace 100 ppm	Snowpack sampling, snowmelt runoff, stream runoff, snowmelt/rain event	Low	
Geothermal Features	Human-caused damage to geothermal areas	Zone 1	No degradation of geothermal resources	Remote sensing and visual observation	High	<ul style="list-style-type: none">▪ Increase law enforcement and educational information▪ Restrict travel
Visitor Experience	Smoothness of the groomed surface	Zone 3	No worse than fair 20% of the daytime hours of park operation (8 A.M. – 4 P.M.)	Visual observation	High	<ul style="list-style-type: none">▪ Increase grooming▪ Adjust vehicle numbers when threshold temperature and/or snow conditions are forecasted or reached
		Zone 4	No worse than fair 20% of the daytime hours of park operation (8 A.M. – 4 P.M.)		Low	
	Visitor satisfaction levels with opportunities to experience and view wildlife, scenery, and clean air and solitude.	Zones 1-8	Visitors are highly satisfied (+90%) with their park experience		High	<ul style="list-style-type: none">▪ Establish carrying capacity/adjust visitor numbers▪ Determine unsatisfactory conditions and rectify
	Visitor perception assessment of important park resources and values	Zones 1-8	Visitors are able to see, smell, and hear the natural environment at roadside pullouts and interpretive trails 90% of each 24-hour period	Visitor survey Encounter rates Time lapse photos Travel simulation models Observations	High	<ul style="list-style-type: none">▪ Establish carrying capacity/adjust visitor numbers▪ Require new technologies

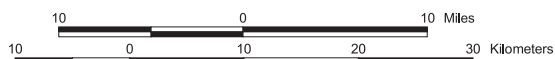
[†]Ingersoll (1999) compared his water quality findings for snowmelt runoff to drinking water standards.

Resource or Value	Indicator	Location/ Management Zone	Preliminary Threshold	Preliminary Method	Initial Monitoring Intensity*	Possible Management Options if Threshold is Violated
Wildlife	Bird and mammal habituation and effectiveness of garbage facilities	Zone 1	Garbage unavailable to wildlife	Photo surveys and observations	High	<ul style="list-style-type: none">▪ Improve or redesign facilities▪ Adjust number of daily vehicle entries permitted▪ Alter or implement commercial guiding requirements and allocations
	Ungulate (e.g., bison and elk) movements on plowed roads	Zone 2	No unacceptable adverse effects. Unacceptable effects are those considered greater than “adverse negligible.” See Chapter IV, <i>Wildlife</i> , for definitions of effects.	Continue bison monitoring, flights, and photo surveys	High	<ul style="list-style-type: none">▪ Evaluate alternative transportation systems▪ Close roads (by road segment or seasonally)
	Vehicle caused wildlife mortality	Zones 2-4	No unacceptable adverse effects	Incident reports, roadside surveys, GIS, and visual observations	High	<ul style="list-style-type: none">▪ Alter or implement commercial guiding requirements and allocations▪ Evaluate alternative transportation systems▪ Increase law enforcement and educational information▪ Reduce speed limits
	Wildlife harassment or displacement due to vehicle sounds or movements	Zone 2-5	No unacceptable adverse effects	Incident reports, photo surveys, and visual observations	High	<ul style="list-style-type: none">▪ Increase law enforcement and educational information▪ Require new technologies▪ Adjust number of daily vehicle entries permitted▪ Alter or implement commercial guiding requirements and allocations▪ Establish additional no-stopping zones▪ Adjust group size requirements▪ Establish timed-entry requirements▪ Close roads (by road segment or seasonally)
	Wildlife trapped by snow berms in road corridor	Zone 2	No unacceptable adverse effects	Incident reports, roadside surveys, and visual observations	High	<ul style="list-style-type: none">▪ Increase number of exit berms and re-evaluate location of existing exits▪ Evaluate alternative transportation systems
	Ungulate (e.g., bison and elk) use of groomed surfaces	Zones 3-4	No unacceptable adverse effects	Visual observations, photo surveys, air surveys, and telemetry. Continue bison monitoring	High	<ul style="list-style-type: none">▪ Close roads or eliminate grooming operations (by road segment or seasonally)▪ Adjust grooming intensity
	Carnivore (e.g., wolves and lynx) displacement and habitat effectiveness	Zones 3-9	Insignificant, discountable, or beneficial effects only	Carnivore and snowshoe hare track surveys and air surveys	High	<ul style="list-style-type: none">▪ Mitigate effects or close area▪ Increase law enforcement and educational information▪ Require new technologies▪ Adjust number of daily vehicle entries permitted▪ Alter or implement commercial guiding requirements and allocations▪ Establish additional no-stopping zones▪ Adjust group size requirements▪ Establish timed-entry requirements▪ Consult with USFWS for appropriate mitigation strategies
	Wildlife harassment or displacement as a result of visitor activities	Zone 6-9	No unacceptable adverse effects	Incident reports, photo surveys, and visual observations	High	<ul style="list-style-type: none">▪ Increase law enforcement and educational information▪ Require use of designated trails only▪ Close areas to use seasonally
	Human-bear conflicts during pre- and post-denning periods	Zones 2 and 7-9	No unacceptable adverse effects	Mapping of denning areas and visitor use patterns and trends. Incident Reports	Moderate	



Key

- Destination/Support Area (Zone 1)
- Plowed Road (Zone 2)
- Groomed Motorized Route-Oversnow Mass Transit (Zone 3)
- Groomed Motorized Trail-Oversnow Mass Transit (Zone 4)
- Boundaries
- Roads
- Lakes



GRTE Geographic Data & Research Center

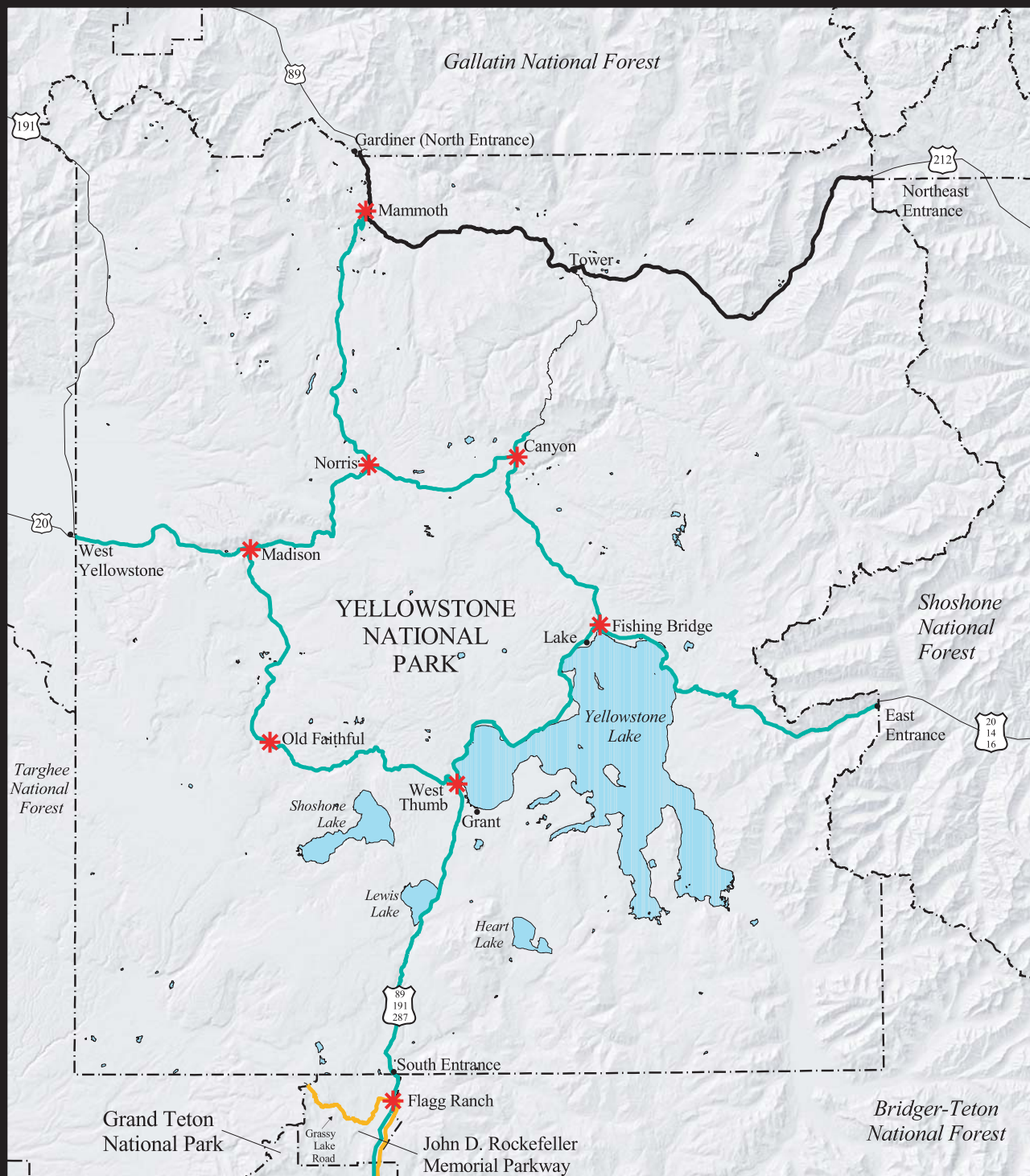
WINTER USE SEIS

Alternative 1a & 1b



Yellowstone National Park
Wyoming, February 2003

Figure 2



Key

- Destination/Support Area (Zone 1)
- Plowed Road (Zone 2)
- Groomed Motorized Route (Zone 3)
- Groomed Motorized Trail (Zone 4)
- Boundaries
- Roads
- Lakes



GRTE Geographic Data & Research Center

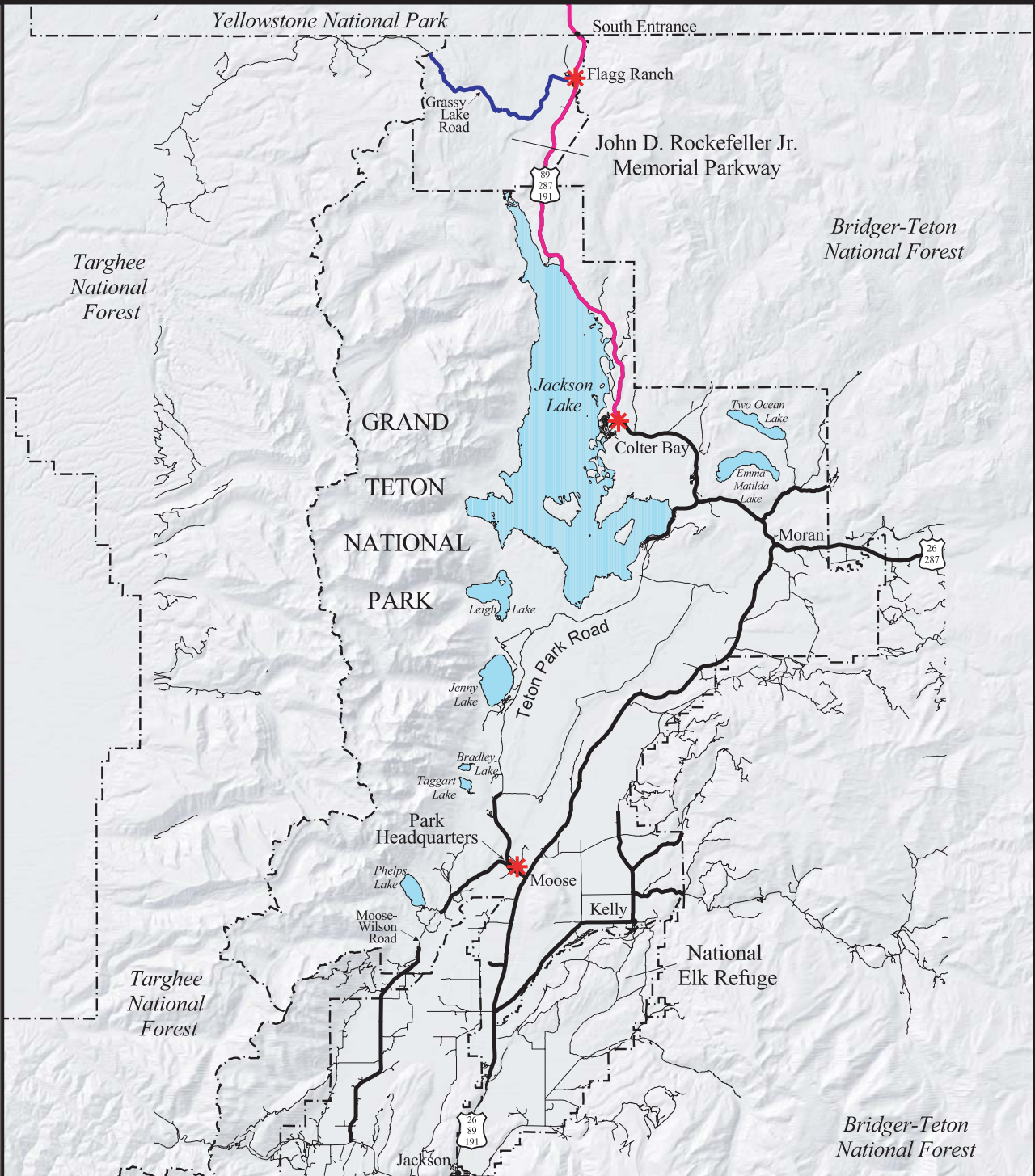
WINTER USE SEIS

Alternatives 2, 3, & 4



Yellowstone National Park
Wyoming, February 2003

Figure 3



Key

- Destination/Support Area (Zone 1)
- Plowed Road (Zone 2)
- Groomed Motorized Route-Oversnow Mass Transit (Zone 3)
- Groomed Motorized Trail-Oversnow Mass Transit (Zone 4)
- Boundaries
- Roads
- Lakes



GRTE Geographic Data & Research Center

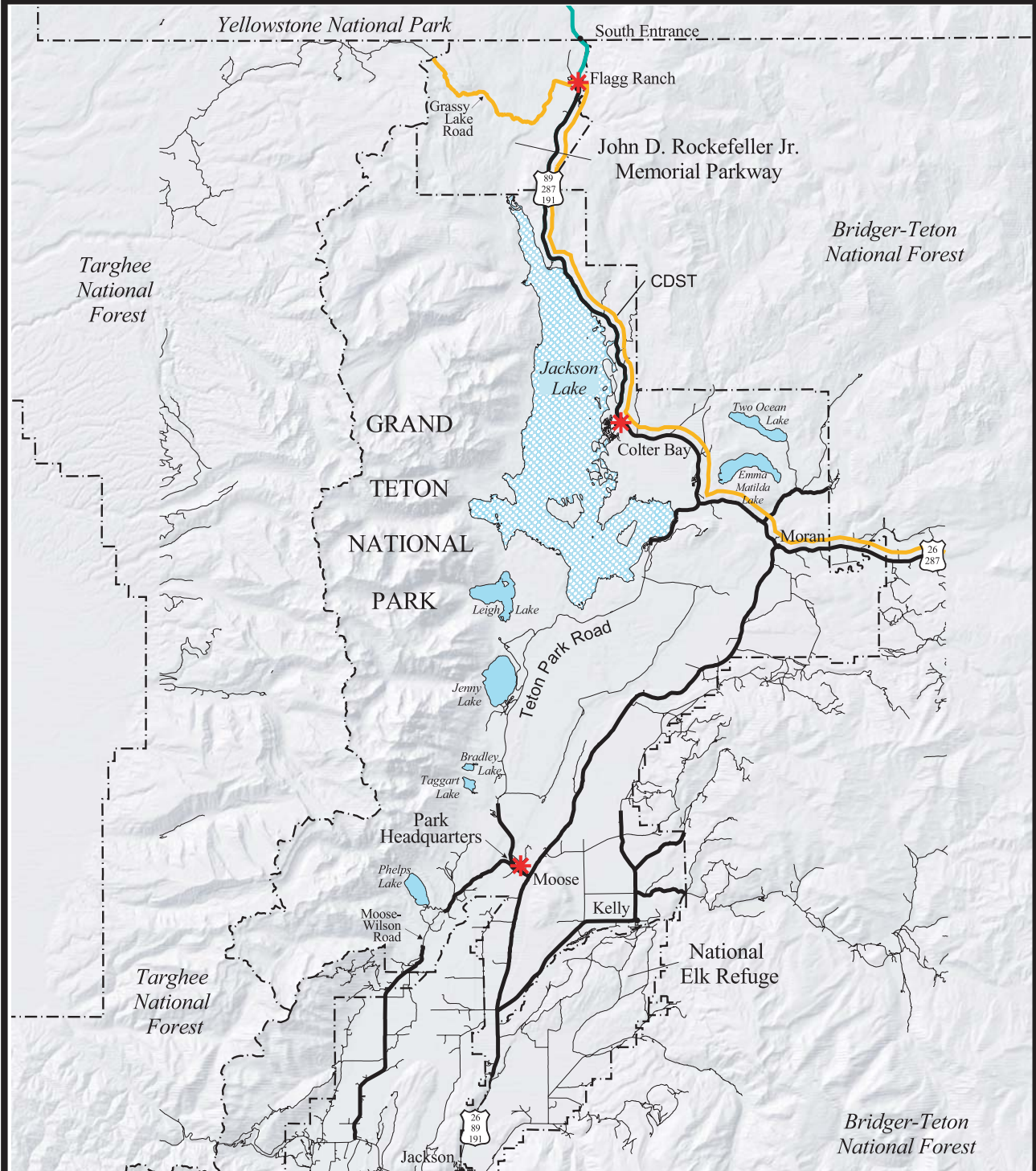
WINTER USE SEIS

Alternatives 1a & 1b



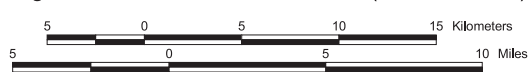
Grand Teton National Park and
John D. Rockefeller, Jr. Memorial Parkway
Wyoming, February 2003

Figure 4



Key

- Destination/Support Area (Zone 1)
- Plowed Road (Zone 2)
- Groomed Motorized Route (Zone 3)
- Groomed Motorized Trail (Zone 4)
- Boundaries
- Roads
- Lakes
- Ungroomed Motorized Trail or Area (Jackson Lake)



GRTE Geographic Data & Research Center

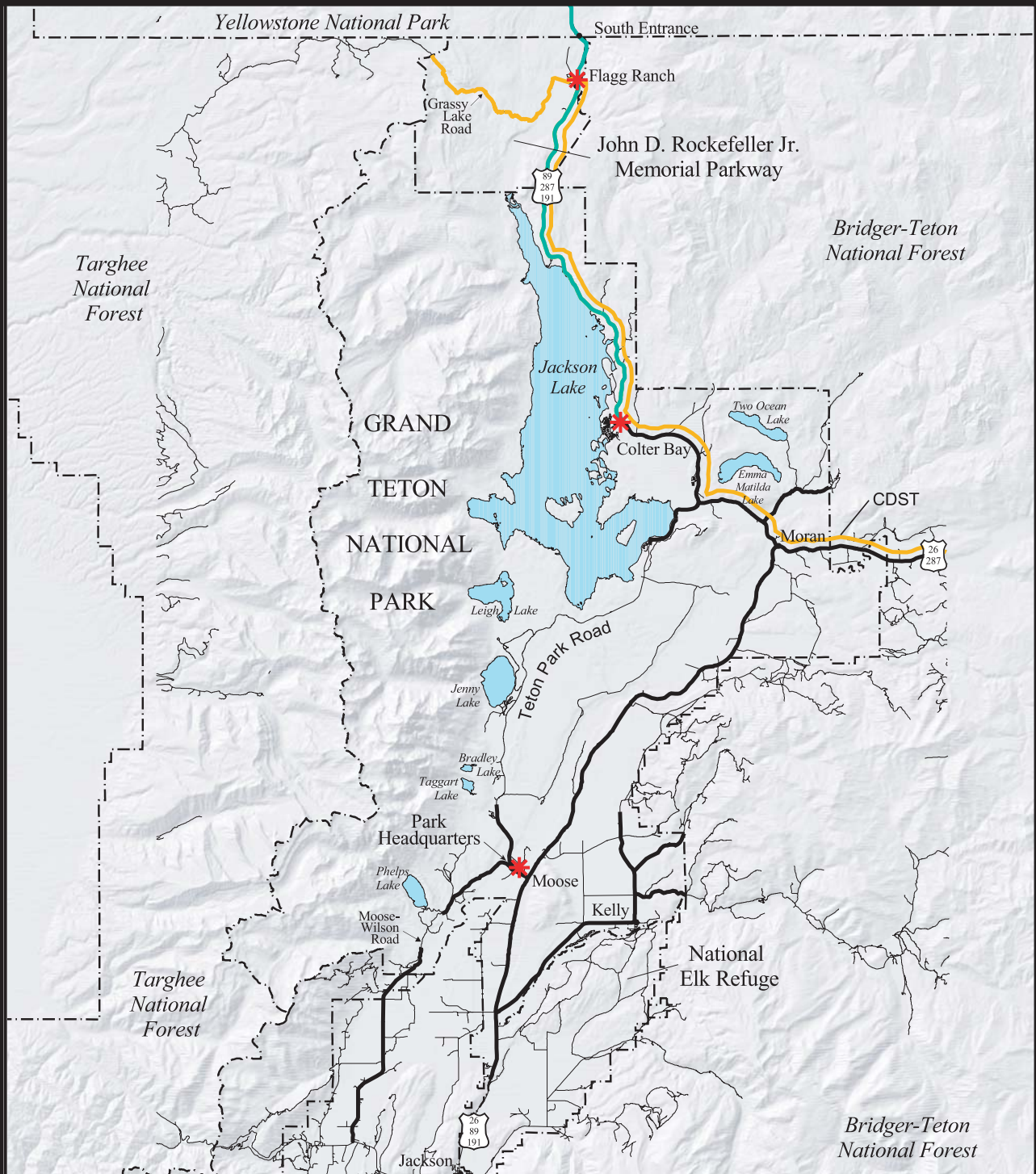
WINTER USE SEIS

Alternative 2



Grand Teton National Park and
John D. Rockefeller, Jr. Memorial Parkway
Wyoming, February 2003

Figure 5



Key

- Destination/Support Area (Zone 1)
- Plowed Road (Zone 2)
- Groomed Motorized Route (Zone 3)
- Groomed Motorized Trail (Zone 4)
- Boundaries
- Roads
- Lakes

Note: Continue plowed access from Colter Bay to Flagg Ranch until winter 2008/2009.



GRTE Geographic Data & Research Center

WINTER USE SEIS

Alternatives 3 & 4



Grand Teton National Park and
John D. Rockefeller, Jr. Memorial Parkway
Wyoming, February 2003

Figure 6

ENVIRONMENTALLY PREFERRED ALTERNATIVE

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